Complete Summary

GUIDELINE TITLE

Identifying and preventing overweight in childhood. Clinical practice guideline.

BIBLIOGRAPHIC SOURCE(S)

National Association of Pediatric Nurse Practitioners (NAPNAP). Healthy eating and activity together (HEAT) clinical practice guideline: identifying and preventing overweight in childhood. Cherry Hill (NJ): National Association of Pediatric Nurse Practitioners (NAPNAP); 2006. 78 p.

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Overweight and obesity

GUIDELINE CATEGORY

Evaluation
Prevention

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Nursing

Pediatrics
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Dietitians
Nurses
Occupational Therapists
Physician Assistants
Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Social Workers

GUIDELINE OBJECTIVE(S)

- To assist pediatric health professionals in applying evidence-based knowledge and expert opinion to the process of identifying and preventing overweight in infants, children, and adolescents
- To provide pediatric and family nurse practitioners in ambulatory care settings with the information and tools they need to:
    - Recognize risk factors for overweight in patients
    - Routinely perform assessments to identify overweight
    - Plan and develop strategies in concert with children, youth, and parents to maintain healthy weight status through education and behavior change strategies that focus on optimal feeding, nutrition, and physical activity practices

TARGET POPULATION

All healthy children, from newborns to adolescents, with secondary application to parents and other family members

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Assessment

1. Family history
2. Physical exam, including, as appropriate for age
    - Growth measurements
    - Blood pressure
    - Fasting glucose, total cholesterol, or lipid panel
    - Sexual maturity rating
3. Assessment for risk of overweight
4. Depression screening
5. Monitoring of nutritional intake
6. Monitoring of daily levels of physical activity and sedentary behavior
7. Assessment of social and emotional development

Management

1. Parent caregiver education
    - Growth and development
    - Nutrition, including breast feeding
    - Physical activity
2. Parent caregiver counseling using Motivational Interviewing (MI)
3. Referral to community nutrition and physical activity resources
4. Advocacy for breastfeeding in the workplace and community and community and school environment and policies to promote healthy eating and physical activity

MAJOR OUTCOMES CONSIDERED

Incidence of childhood obesity and associated comorbid conditions

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

During the initial stages of the project, a professional health sciences reference librarian conducted a wide literature search encompassing multiple databases, including PUBMED, CINAHL, COCHRAN, FIRSTSEARCH (OCLC), INFOTRAC, EBSCOHOST, MEDSCAPE, MEDLINEPLUS, OVID DATABASES, CATALOG OF FEDERAL DOMESTIC ASSISTANCE, and ERIC. In addition, many private pediatric and child health websites and federal websites, including those of Health and Human Services (HHS), Center for Disease Control (CDC), and the U.S. Food and Drug Administration (FDA), were explored, using search terms grouped as (obesity, obese, fat, overweight, morbidity), (child, children, teens, teenagers, teen, teenage, baby, babies, adolescent, adolescence, infant, infants, toddlers, preschoolers), and (study, review, guidelines, policies, research, statements, pioneer, history, federal, assistance, and grants).

Subsequently, each Work Group leader and several Work Group members expanded these searches, using a variety of search strategies and accessing many databases and websites to continuously add to the available literature and science that could support this guideline. At the conclusion of the guideline development process, one additional rigorous literature search was conducted, using similar search terms as before, to find any recently published work that was pertinent to the recommendations. Two external expert reviewers also sent publications for consideration.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

The Research Work Group reviewed the literature using the American Academy of Pediatrics (AAP) policy statement, "Classifying Recommendations for Clinical Practice Guidelines" to assign ratings of the level of quality of the evidence provided in individual studies.

A Well-designed randomized controlled trials (RCT) or diagnostic studies on relevant populations

B RCT or diagnostic studies with minor limitations; overwhelmingly consistent evidence from observational studies

C Observational studies (case control and cohort)

D Expert opinion, case reports, reasoning from first principles

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Because high-quality evidence about preventive strategies is so limited, aggregate ratings of the strength of the evidence from multiple studies were not assigned to each recommendation. In general, the evidence for the Early Identification section is the strongest, with many B and C level studies supporting the recommendations. Evidence in the Developmental Issues and Communication as well as the Nutrition Essentials sections are predominantly C and D. C-level evidence predominantly supports recommendations in the Physical Activity and Sedentary Behavior section. References that are not in themselves reports of a research study, although they discuss research findings, do not have ratings. These include policies, reports, and recommendations from other organizations, such as the U.S. Department of Agriculture's (USDA's) *2005 Dietary Guidelines for Americans*. Ratings for the same study also may differ across age groups based on whether the study sample was more or less representative of that section's age group focus.

Many professional and government organizations have published evidence-based guidelines and recommendations that are relevant to the focus of the guideline. Consequently, the guideline includes references to recommendations from the American Heart Association (AHA), the American Dietetic Association (ADA), the American Academy of Pediatrics (AAP), and the U.S. Department of Agriculture (USDA) in order to provide the most comprehensive information to practitioners in a convenient manner.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Early Planning and Development

Following National Association of Pediatric Nurse Practitioners (NAPNAP) Executive Board approval, the Healthy Eating and Activity Together (HEAT) Initiative began in the summer of 2003 with the formation of a Steering Work Group (SWG) comprised of eight members: a national chair, one member representing each of four age groups (infancy, early childhood, school age, and teen), and members representing the interests of research and evaluation, cultural diversity, and advocacy. This group was charged with providing overall direction and guidance to the Initiative. NAPNAP also solicited participation by interested members in smaller Work Groups under the leadership of each member of the SWG.

In order to provide clear direction for the Initiative, the SWG met in December 2003 to develop the HEAT Initiative Strategic Plan. The centerpiece of the effort was the commitment to develop a clinical practice guideline for health care professionals in primary care focused on identifying and preventing childhood overweight. The Work Groups participated in conference calls, literature reviews, and discussions throughout 2004 as they planned a Guideline Development Meeting.

Halfon and Hochstein's Life Course Health Development Model provided the theoretical framework for the guideline. This model considers the multiple factors outside the child that influence not only the child's resources and choices, but also the child's psycho-neuro-endocrine-immune function. These include genetic endowment from the parents and all aspects of the environment—family, physical, social, cultural, psychological, policy—and the health care system, all of which contribute to the child's health outcomes.

Houston Meeting

On January 14, 2005, the HEAT SWG and members of the individual smaller Work Groups met in Houston, Texas, to draft the HEAT Clinical Practice Guideline. Meeting participants divided into the four age groups: infancy, early childhood, school age, and teen. Based on initial reviews of the literature and their clinical expertise, group members discussed and developed recommendations in six areas judged critically important to preventing overweight. These areas are as follows:

- Early identification of overweight
- Developmental considerations
- Parent/child communication
- Nutrition essentials
- Feeding and eating behaviors:
- Physical activity

The rationales for these six topic areas can be found in the original guideline document.

The Work Groups analyzed and selected supporting scientific evidence for recommendations in each of these six areas. Members of the Research and Evaluation, Cultural Appropriateness, and Advocacy Work Groups participated in the discussions for each age group to assist members in delineating the evidence base for recommendations, ensure that the recommendations were sensitive to and appropriate for diverse populations, and suggest advocacy strategies for implementing guideline recommendations. Additional sessions for participants, which focused on the practical aspects of applying the recommendations, also were held to augment the guideline development process.

Using the discussions and recommendations from the Houston meeting and additional work by the Research and Evaluation and Advocacy Work Groups, the SWG developed a draft guideline that consolidated the recommendations for the six topic areas into five areas:

- Early identification of overweight
- Developmental and communication considerations
- Nutrition essentials, feeding, and eating behaviors
- Physical activity and sedentary behavior
- Advocacy

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

In April 2005, the draft guideline was presented at the National Association of Pediatric Nurse Practitioners (NAPNAP) Annual Conference to a small group of attendees for review and feedback at an intensive Healthy Eating and Activity Together (HEAT) Clinical Practice Guideline workshop. The draft also was reviewed by an external group of health experts representing a broad range of disciplines in areas covered by the guideline. These experts included dietetics and nutrition, exercise physiology, medicine and health economics as well as nursing experts outside of the NAPNAP membership. Their names, areas of expertise, and professional affiliations appear on page S2 of the original guideline document. The draft was revised and refined based on comments received from these expert reviewers.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): Recommendations in italics have been designated by the guideline developer as "Culturally Appropriate Recommendations."

Infancy (Birth to 12 months)

Section 1. Early Identification

Clinical Practice	Rationale and Reference
History 1. Document and annually update a three-generation family health history, including: overweight, hypertension, diabetes mellitus, gestational diabetes, coronary heart disease (CHD) before 55 years in men and 65 years in women, smoking and passive smoke exposure, gestational age and birth weight of the child, and parent self-report of height, weight, and educational level.	**History** 1. Knowledge of family risk factors associated with overweight and its co-morbid conditions allows the clinician to evaluate risk of overweight in subsequent generations. The American Heart Association (AHA), National Heart, Lung, and Blood Institute (NHLBI), American Academy of Pediatrics (AAP), and others agree that the identified conditions in adult family members represent risk of overweight and its co-morbidities (Barlow & Dietz, 1998; Bell & Wolfe, 2004; Bergmann et al., 2003; Gillman et al., 2003; Gillman et al., 2001; Hack et al., 2003; Hebebrand et al., 2000; Kavey et al., 2003; Krebs & Jacobson, 2003; Wardle et al., 2002; Whitaker, 2004; Whitaker et al., 1997). Infants classified as Large-for-Gestational- Age (LGA) or Small-for-Gestational-Age (SGA) are more likely to become overweight in childhood (Hack et al., 2003). Maternal overweight and low income status are strongly associated with increased risk of childhood overweight (Bell & Wolfe, 2004; Danielzik et al., 2004). The powerful effect of maternal overweight and other risk factors on the development of adiposity in childhood allows for directed preventive efforts to the most vulnerable populations.
a. Pay particular attention to a history of maternal diabetes, including gestational diabetes, because this condition places all exposed infants, especially those of **Native American** *mothers, at significant*	*a. Exposure to intrauterine diabetes was a risk factor for the development of obesity and diabetes in* **Pima Indian** *children. Lower rate of Type 2 diabetes was found in Pima Indians who were exclusively*

Clinical Practice	Rationale and Reference
risk of overweight.	*breastfed* (Story et al., 2003).
Measurement 2. Perform accurate length, weight, and head circumference* measurements at least at each well child visit from 6 to 18 months of age. *(This is an appropriate measurement for these visits although it is not relevant to overweight.)	**Measurement** 2, 3. The Centers for Disease Control and Prevention (CDC) growth charts released in 2000 are recommended by the AAP as the best growth charts to use in practice. Plotting of growth measures on appropriate growth charts allows the practitioner to identify changes in growth trends and provide appropriate intervention. Visual representation of growth patterns aids parents in understanding their child's growth (Bell & Wolfe, 2004; Dennison & Boyer, 2004; Krebs & Jacobson, 2003).
3. Perform assessment of risk of overweight:	
a. Document weight for length on the 2000 CDC growth chart from birth to 23 months of age.	a. Weight for length, not body mass index (BMI), is recommended by the CDC to judge overweight in infancy (CDC, "Growth charts," 2005).
b. *Monitor infants birth to 6 months of age for early rapid weight gain, a particularly strong risk factor for* **African American** *and* **Hispanic** *infants.*	
c. Document on the problem list weight-for-length percentiles ≥85th% or early, rapid weight gain in the first 6 months of life.	c. (Dennison & Boyer, 2004).
Education 4. Educate parents about their child's growth pattern, clearly identifying risk status for overweight when early, rapid infant weight gain or weight-for-length measurements ≥85th% occurs.	**Education** 4. Parents who understand their child's growth patterns and their significance will be more likely to retain good lifestyle behaviors and change those that are unfavorable to their child's growth and wellness (Agras et al., 2004; Berkowitz et al., 2005; Dennison & Boyer, 2004; Krebs & Jacobson, 2003; Story, Holt & Sofka, 2000).

Section 2. Developmental and Communication Considerations

Clinical Practice	Rationale and Reference
Assessment 1. Monitor parent affect using the two-question depression screen at every well child visit.	**Assessment** 1. Parent depression interferes with the ability to read and respond to infant

Clinical Practice	Rationale and Reference
During the past month have you been bothered by: a. Feeling down, blue, depressed, or hopeless? b. Feelings of little interest or pleasure in doing things?	hunger and satiation cues and often results in a detached parenting style that interferes with infant feeding and growth. Infancy is a period of rapid growth and development for the brain's limbic system. Development of the limbic system is supported by frequent, positive contact with the caregiver. The U.S. Preventive Services Task Force (USPSTF) recommends screening for depression among adults, finding the two-question screen as effective as longer screening questionnaires (Berg & Allan, 2002; Jellinek, Patel, & Froele, 2002; Lundy et al., 1999; Whooley et al., 1997).
2. Document areas of strength and concern.	2. Use of a structured assessment for nutrition and physical activity as well as strengths of the parent-child relationship assists the practitioner in identifying areas of strength for reinforcement, which increases the likelihood that positive behaviors will be retained and repeated. Identification of less optimal behaviors provides direction for timely intervention.
3. *Document parents' attitudes, values and beliefs, and spiritual and cultural influences about nutrition, physical activity, and body size and shape; maternal education level; race/ethnicity; religion; preferred language; and preferred type of educational materials.*	3. **Hispanic** *families often perceive a "chubby" baby as ideal or healthy. Thinness may be associated with poor health. Rapid weight gain (> than 8 to 10 pounds) of the* **African American** *baby during the first 4 months of life is common and increases the risk of obesity as an adult. Infants in some Native*

Clinical Practice	Rationale and Reference
	American tribes gain weight at a greater rate between 1 and 6 months of age than do other infants in the U.S. (Crawford et al., 2004; McArthur, Anguiano, & Gross, 2004, Stettler, et al., 2003; Story et al., 2003). *The increased risk and incidence of overweight are associated with low socioeconomic status (SES) and minority ethnicity* **(African American, Hispanic, Native American/Native Alaskan)** Fitzgibbon & Stolley, 2004; Hedley et al., 2004). *Prenatal maternal overweight is associated with increased risk of fetal macrosomia and congenital anomalies* (Gillman et al., 2003; Gillman et al., 2001; Graber et al., 2002; Kramer et al., 2002; Lederman et al., 2004; Mamun et al., 2005; Owen et al., 2005; Simmons, 2004). *Data suggest a protective effect of breastfeeding for Caucasian infants who are exclusively breastfed for the first 6 months of life* (Berg & Allan, 2002; Hediger, 2001; Vereecken, Keukelier, & Maes, 2004). *Recent work by both the Agency for Healthcare Research and Quality (AHRQ) and the Institute of Medicine (IOM) highlight the need for practitioners to assess patients for their literacy skills and preferred methods for learning to ensure the best level of patient understanding of*

Clinical Practice	Rationale and Reference
	health information (American Academy of Pediatrics Committee on Public Education [AAP], 2001; Cooper & Powe, 2004; Institute of Medicine [IOM], 2002). *Health information should be available in a variety of formats and languages.*
Education 4. Educate parents about changes in growth velocity and appetite during the first year and the need to adjust feeding expectations to the changing infant's development, feeding abilities, and nutritional needs.	**Education** 4. Parents who understand their child's growth patterns and their significance will be more likely to retain good lifestyle behaviors and change those that are unfavorable to their child's growth and wellness. Parents who understand the links among developmental drives, changing gross and fine motor skills, and the child's innate ability to match energy intake with energy output will be less likely to use intrusive feeding practices that cause infant distress and may result in overfeeding (Bell & Wolfe, 2004; Dennison & Boyer, 2004; Faith et al., 2004; Johnson & Fisher, 2004; Krebs & Jacobson, 2003; Story, Holt & Sofka, 2000).
5. Educate parents about strategies for effective decoding and communication with their changing child, especially infant behavioral cues of readiness to interact or need for a break or change, and the broadening range of emotions at 6 months of age.	5. Parent counseling and education during infancy regarding feeding practices is foundational to the development of healthy eating habits Parents who understand the nonverbal communications of their infants and adapt their care to their baby's signals, are likely to establish a positive feeding relationship that respects the infant's ability to match energy intake with

Clinical Practice	Rationale and Reference
	energy output and avoids overfeeding (Story, Holt, & Sofka, 2000; Taveras et al., 2004).
6. *Counsel parents and extended family members about issues related to the infant's health*.	6. *Family is of great importance to all children, and is of special relevance in both the* **Hispanic** *and* **African American** *cultures. Compadres (godparents) play a significant role in the life of the Hispanic infant. African American grandparents are highly involved with the upbringing of their grandchildren. Many* **Native American** *households include extended family members (grandparents, aunts, uncles). Practitioners are more likely to be successful with their messages if the extended family is included in the discussion* (Barron et al., 2004; Cherry & Giger, 2004; Davis et al., 2003; Estes, 2002; McArthur, Anguiano, & Gross, 2004; National Heart, Lung, and Blood Institute [NHLBI], 2003).
7. Refer families as needed to appropriate community nutrition and physical activity resources, including registered dietitians (RDs).	7. Practitioners are a vital link between families and local community agencies. They can assist families with concerns and can provide referrals to resources that encourage positive nutrition and physical activity for infants. RDs are especially helpful with mothers who need intensive education and in ensuring optimal nutrition for children with chronic illnesses or special health care needs. Qualified RDs can be located using the American Dietetic

Clinical Practice	Rationale and Reference
	Association (ADA) website http://www.eatright.org (Story, Holt, & Sofka, 2000).
8. Counsel using Motivational Interviewing (MI) when parents are willing to make positive changes: a. Reinforce all positive health behaviors. b. Identify discrepancies between goals and behaviors. c. Develop a plan of action in partnership with the family. (Resources to aid in the use of MI techniques: http://motivationalinterview.org/training/videos.html)	8. MI creates a partnership between the parent, child, and professional to address health issues that parents and children can choose to focus on if they wish. The structured MI approach helps the partners address important health issues in a timely way. Some evidence indicates that MI improves the likelihood of positive patient behavior change (Bell & Wolfe, 2004, Burke & Fair, 2003; Miller & Rollnick, 2002; Sindelar et al., 2004).

Section 3. Nutrition Essentials, Optimal Feeding, and Eating Behaviors

Clinical Practice	Rationale and Reference
Assessment 1. Monitor nutritional intake for consistency with expert recommendations for age at each well child visit or at least annually, including:	**Assessment** 1. Expert recommendations are provided by the AAP 2005 *Breastfeeding Policy Statement* and the ADA 2004 *Start Healthy Guidelines for Feeding Infants and Toddlers (Birth to Age 2 Years)* (Butte et al., 2004; Gartner & Greer, 2003). Nutrition supervision and assessment includes inquiries about intake volume, frequency, and duration as well as appropriateness of nutrient and nutritional patterns in order to identify changes that may be needed. Information regarding infant's exposure and transition to solid foods provides the foundation for identifying feeding practices and infant responses and the opportunity to individualize education and counseling (Baker et al., 1999; Bell & Wolfe, 2004; Gartner & Greer, 2003; Story, Holt, & Sofka, 2000).
a. Breastfeeding for frequency, duration, latch, comfort, efficiency (8 to 12 times a day at birth, changing to 6 to 10 times a day when solids are introduced).	a, b. Observing a feeding is often the best way to determine the source of identified problems with intake (Kleinman, 2004).

Clinical Practice	Rationale and Reference
b. Iron-fortified formula intake based on 110 calories per kilogram (kg).	
2. Monitor and document barriers to healthful eating, such as lack of nutritious foods, financial barriers, and lack of knowledge about healthful food choices.	2. To best assist parents, health care providers must be aware of barriers that families face in making appropriate food choices (Strauss & Knight, 1999).
Education 3. Educate parents about recommended nutritional intake for age:	**Education**
a. Breastfeed exclusively from birth to 6 months of age and throughout the first year of life after complementary foods are added.	a. The World Health Organization (WHO), AAP, and Maternal and Child Health Bureau of the U.S. Department of Health and Human Services (MCHB/DHHS) recommend breastfeeding exclusively in the first 6 months of life and throughout the first year. Breastfeeding is more likely to be successful when both practical information and social support are provided. The combination of maternal pre-pregnancy obesity (BMI $\geq$30) and lack of breastfeeding may be associated with greater risk of childhood overweight. Therefore, promotion of breastfeeding for mothers with pre-pregnancy obesity is particularly encouraged. Breastfeeding also has a protective effect for children whose mothers have a normal pre-pregnancy BMI (Gartner et al., 2005; Li et al., 2005; Story, Holt, & Sofka, 2000; von Kries et al., 1999).
b. Offer iron-fortified formula to infants not breastfed until 12 months of age, not to exceed 32 ounces (oz) per day.	b. A greater prevalence of iron-deficiency anemia has been found in infants who have not received iron-fortified formula (Kattelmann, Ho, & Specker, 2001).
c. Wait to introduce appropriate types, amounts, and portion sizes of healthful complementary foods until the child is developmentally ready, between 4 to 6 months of age.	c. Early introduction of mixed feeding is associated with early, excessive weight gain in infancy and overweight in childhood. Infants do not require foods other than breast milk or formula until 4 to 6 months of age (Kramer et al., 2004; Stettler et al., 2003; Stettler et al., 2002). No data exist to guide the sequence of offering new foods. The current, prudent recommendation is that single foods be offered one at a time and for several days to identify any adverse reactions. Food allergies will be promptly identified. More than one exposure to the food is necessary

Clinical Practice	Rationale and Reference
	to sensitize the infant and provoke an allergic reaction (Butte et al., 2004; Story, Holt, & Sofka, 2000).
d. Iron-fortified cereal: begin between 4 to 6 months and transition from 1 to 2 servings per day; decrease to 1 serving per day as other iron-rich foods are added to the diet. e. Fruits: gradually increase from 1 to 3 servings per day. f. Vegetables: gradually increase from 1 to 2 servings per day. g. Protein-containing foods: gradually increase from 1 to 2 servings per day.	d. A greater prevalence of iron-deficiency anemia has been found in infants who have not received iron-fortified formula or cereal. Correction of anemia does not reverse the adverse affects of anemia on the child's mental abilities (Kattelmann, Ho, & Specker, 2001; Kleinman, 2004; Story, Holt, & Sofka, 2000).
h. Calcium-containing foods: Adequate Intake (AI) = 210 milligrams (mg) per day from 0 to 6 months; 270 mg per day from 7 to 12 months.	h. Good scientific evidence is lacking regarding the actual calcium needs of infants. The recommended AIs presented here are taken from the IOM 2004 Daily Required Intake (DRI) report and are based on extrapolations from data on maternal breast milk, its content, bioavailability, and typical daily intake (Baker et al., 1999; Butte et al., 2004; Kleinman, 2004.
i. Vitamin D: minimum requirement is 200 International Units (IU) per day. A supplement of 200 IU per day is recommended for breastfed infants who do not receive adequate sunlight exposure and formula-fed infants who are taking less than 500 milliliters (mL) per day of formula.	i. (Gartner & Greer, 2003).
j. Eliminate night-time bottle feedings by 6 months and plan to transition to cup feeding between 9 to 12 months of age.	j. By 6 months of age, infants begin to consolidate their sleep cycles, gradually increasing sleep from 2 to 3 hours to 6 to 8 hours by 6 months of age. By 6 months of age, night feedings are no longer necessary for healthy babies who are getting adequate calories during the daytime. A transition to cup feeding between 9 and 12 months of age is usually developmentally appropriate. Additional feedings may lead to overfeeding and overweight. Prolonged use of the bottle is linked with greater risk of overweight in early childhood (Bonuck, Kahn, & Schechter, 2004; Kramer et al., 2004; Stettler et al., 2003; Stettler et al., 2002).
k. Avoid calorie-dense, nutrient-poor	k. Recent research shows that many

Clinical Practice	Rationale and Reference
foods.	mothers introduce a variety of calorie-dense, nutrient-poor foods during infancy. Anticipatory guidance may reduce the frequency of their use and prevent excessive weight gain associated with intake of such foods (Kramer et al., 2004; Stettler et al., 2003; Stettler et al., 2002).
l. Provide 3 meals and 2 to 3 healthy snacks daily for older infants and young children.	l. Most 9-month-old infants are on the same eating schedule as their family, which is typically breakfast, lunch, and dinner with infant snacks mid-morning, afternoon, and bedtime. Infants' limited stomach capacity results in an inability to get all of the nutrition they need in fewer, larger meals. Frequent small meals helps to prevent infant distress and tantrums caused by hunger (Story, Holt, & Sofka, 2000).
m. Limit 100% fruit juice to 4 to 6 oz per day and avoid consumption of fruit drinks and sodas.	m. Excessive fruit juice intake is associated with excessive weight gain. Many parents confuse fruit drinks or fruit-flavored beverages with 100% fruit juice (Story, Holt, & Sofka, 2000).
4. Educate parents about how to carry out promising feeding practices: a. Accept that food intake varies from day to day as the infant balances energy intake from food with energy output in activity.	4a. Parents benefit from understanding that it is normal for infants and young children to vary their intake each day to match their activity level, thus preventing overweight (Johnson & Fisher, 2004; Lederman et al., 2004).
b. Respect the infant's innate ability to self-regulate intake based on satiety by recognizing and responding appropriately to infant hunger and satiation cues.	b. Children from birth to 5 years of age demonstrate the ability to self-regulate the balance in intake of energy from food with their daily activity level. Teaching parents to recognize and respect hunger and satiation cues ensures that this innate regulatory ability is supported, preventing overfeeding (Johnson & Fisher, 2004; Lederman, 2004).
c. Eat together as a family as often as possible to increase quality of nutrition and enhance family connectedness.	c. When children eat regularly with families, they increase their intake of fruits, vegetables, fiber, and micronutrients from food; consume fewer fried foods, less soda, and less saturated and trans fat; and have a lower glycemic load. Family mealtime is a time that parents convey their cultural beliefs and values to their young children, and a "typical weekday family meal" is a potent way to shape an infant's learning about nutrition and eating (Gillman et al., 2000)

Clinical Practice	Rationale and Reference
d. Assist in the development of the infant's self-feeding skills through appropriate use of utensils, including juice and/or water in a sippy or open cup.	d. The introduction of solid foods allows the infant to explore new textures, smells, colors, and tastes of foods. The infant's developing motor skills, vision and social behaviors, tongue movements, and head and trunk control allow the infant to sit and reach for food and objects. These experiences provide the foundation for self-feeding in which the child gains control over the types and amounts of food consumed through exploration and experimentation with new foods and self-feeding skills (Johnson & Fisher, 2004; Story, Holt, & Sofka, 2000).
e. Support the importance of the infant's developing ability to self-regulate feeding.	e. Learning about foods and eating during the transition to solid foods from an exclusive breast milk or iron-fortified formula diet is an important developmental task during infancy. Parental control over food types and portion sizes offered to the child has the potential to affect a child's feeding practices and energy balance by increasing the child's preference for high-fat, energy-dense foods and limiting the child's acceptance of a variety of foods and food textures (Johnson & Fisher, 2004; Story, Holt, & Sofka, 2000).
f. Recognize parental responsibility to purchase and prepare only healthful foods and drinks.	f. Advertising powerfully affects parents' purchasing decisions. By providing education on the importance of the parent's choices of foods, practitioners may provide needed support for positive nutritional practices in the home (Ritchie et al., 2005; Roberts, Blinkhorn, & Duxbury, 2003)
5. Educate parents about how to avoid engaging in less optimal feeding practices and deal with common feeding difficulties: a. Avoid use of the "clean bottle or plate" policy.	5a. Parental feeding practices, particularly parental control over the child's eating, may be culturally based and reflect the parent's own body dissatisfaction rather than the child's actual weight. Sensitivity to these factors needs to be considered when counseling families (Duke et al., 2004).
b. Avoid use of food as a bribe or reward; offer food only to satisfy hunger. c. Encourage the infant to develop strategies for self-calming vs. caregiver's use of "comfort feeding" for calming.	b., c. Feeding is a common parental response to infant distress. Parents need information about the breadth of reasons an infant cries, other than hunger, and ways to distinguish among these cries for help. Information about ways to support an infant's self calming efforts (flexed positioning, hands to face or mouth, non-nutritive sucking) also promotes the infant's overall development of self

Clinical Practice	Rationale and Reference
	regulation (Dennison & Boyer, 2004; Story, Holt, & Sofka, 2000).
d. Recognize neophobia (fear of new foods) as a typical developmental response to new foods that requires repeated exposures (up to 15 times) to new foods and opportunities to learn about food and eating.	d. Providing nutrition and feeding information to parents about common challenges encountered with older infants enables them to become more effective problem solvers and decision makers regarding their infant and child's eating and feeding habits (Butte et al., 2004; Lee, Hoerr, & Schiffman, 2005; Vereecken, Keukelier & Maes, 2004).
e. Recognize that overfeeding may be contributing to spitting up or gastroesophageal reflux disease (GERD).	e. Spitting up and reflux are common parental concerns in infancy. Overfeeding should be included in the differentials evaluated as a possible cause (Bergmann et al., 2003; Wray & Levy-Milne, 2002).
f. Provide positive verbal recognition of the child's efforts to try new foods.	f. Feeding during the first year provides a social context for eating. The parent's presence with the infant during mealtimes and his/her social and verbal responses to the infant's cues allow for a positive feeding environment and interaction that "feeds" not only the infant's nutritional needs but emotional needs as well. This is an important way to set the stage for the importance of a child's emotional needs being met through social interactions, rather than through food (Story, Holt, & Sofka, 2000).
6. *Counsel with an emphasis on the positive health consequences of good nutrition rather than focusing on the infant's weight*.	6. **Hispanics**: *In the Hispanic culture, thinness is often associated with poor health and there is often the perception that a little extra weight is necessary for children in order to help them recover from illness.* (Crawford et al., 2001; McArthur, Anguiano & Gross, 2004). **African Americans**: *African Americans are more tolerant of larger body size, and caregivers seldom perceive their children as obese* (American Obesity Association, 2005; Stettler et al., 2003). *Practitioners may be more successful at establishing rapport with Hispanic and African American families if the discussion is initially focused on health not necessarily weight.*

Section 4. Physical Activity and Sedentary Behavior

Clinical Practice	Rationale and Reference

Clinical Practice	Rationale and Reference
Assessment 1. Monitor at each well child visit: • Daily active play versus quiet play level and amount • Daily types and amounts of sedentary activity • Barriers to being physically active (e.g., safety, access, cost)	**Assessment** 1. A portion of an infant's day should include opportunities for physical activity: • Interactions with parents that help children explore their environment • Activities that promote the development of movement skills • Activities that do not restrict movement for prolonged periods of time • Activities in environments that meet or exceed recommended safety standards for performing large muscle activities (National Association for Sport and Physical Education [NASPE], 2005).
Education 2. *In counseling, emphasize positive health consequences of increased physical activity rather than focusing on the infant's weight.*	**Education** 2. **Hispanics**: *Average physical activity is lower among Hispanic children than white children* (Crawford et al., 2001; McArthur, Anguiano, & Gross, 2004). **African Americans**: *Statistically, heads of household in this population are less likely to do well with weight loss programs, which decreases their attempts to change their children's weight status* (Stettler et al., 2003). **Native Americans**: *Native American children are not physically active on a regular basis. A collaborative relationship that involves the Native American community is essential for a program to be successful. Encourage any games that may be traditional for a specific tribe* (Going et al., 2003; Story et al., 2003).
3. Educate parents about age-appropriate physical activity and how to incorporate it into daily family routines.	3. Parents want to learn about infant development and how to promote it healthfully. Energy intake must be balanced with energy output in order to avoid overweight. Physical play and activity promote child development and psychological well-being (NASPE, 2005).
a. When awake, infants need adult-supervised tummy time daily, plus a variety of opportunities for play that foster gross- and fine-motor skills.	a. This is a neglected area of anticipatory guidance. Providing information to parents increases the likelihood that infants will have appropriate play opportunities (Burke & Fair, 2003).
4. Educate parents about the value of family activities and	4. Infants learn language during interaction with others. Infants should have frequent brief periods of

Clinical Practice	Rationale and Reference
parent modeling of positive physical activity behaviors.	activity throughout the day to develop a breadth of developmental skills (NASPE, 2005).
5. Educate parents about media influence on health-related behaviors and how to carry out promising screen time practices: a. Turn off TV during meals. b. Avoid all forms of screen time before 2 years of age, and limit screen time to no more than 2 hours per day thereafter. c. Monitor the child's time to ensure a balance between screen time and physical activity. d. Do not allow a TV in the child's bedroom.	5. Television and video viewing are not interactive and are passive, sedentary forms of distraction for young infants. Research shows that infants are watching television and often spend 3 hours or more each day in this passive activity (AAP Committee on Public Education, 2001; Certain & Kahn, 2002).

Section 5. Advocacy

Clinical Practice	Rationale and Reference
Parents 1. Advocate for work environments that support breastfeeding mothers. a. Employers should support breastfeeding mothers by providing a clean, private area for breast pumping and a refrigerator for storage of breast milk.	**Parents** 1–3. Breastfeeding provides significant social and economic benefits to the nation, including reduced health care costs and reduced employee absenteeism related to infant and child illness. (AAP, 1997).
2. Advocate for breastfeeding mothers to be exempt from public decency laws.	
3. Advocate for communities to support breastfeeding through breastfeeding public awareness campaigns.	
4. Advocate for infant care settings to be safe settings that facilitate physical activity and do not restrict movement for prolonged periods of time.	4, 5. Promoting healthy patterns of physical activity, motor skill acquisition, and exploration of the environment in infancy and early childhood enhances physical, mental, and social development of children (Mathematica Policy

Clinical Practice	Rationale and Reference
a. Counsel parents about the standards for local childcare and daycare centers on daily activities, including screen time and opportunities for physical activity. b. Advocate for public access media and local radio to feature active play and physical activities for young children. c. Advocate for Women's, Infants, and Children (WIC) Centers to engage families in active play and physical activity.	Research, 2004; NASPE, 2004).
5. Advocate for communities to provide safe, outdoor play areas for infants, toddlers, and preschoolers.	
Providers 6. Advocate for improved nutrition information through WIC. 7. Advocate for community, zoning, enterprise, and tax laws that favor grocers willing to locate in low-income neighborhoods.	**Providers** 6, 7. Health professionals play a key role in identifying evidence-based changes and supporting fellow professionals and the families they serve by lobbying for important changes for the community's health (Butte et al., 2004).

Early Childhood (1-4 Years)

Section 1. Early Identification

Clinical Practice	Rationale and Reference
History 1. Document and annually update a three-generation family health history, including: overweight, hypertension, diabetes mellitus, gestational diabetes, CHD before 55 years in men and 65 years in women, smoking and passive smoke exposure, gestational age and birth weight of the child, and parent self-report of height, weight, and educational level.	**History** 1. Overweight reflects a gene-environment interaction. Parents provide both genes and environment for the young child. Having one or both parents overweight and low income status are strong predictors of childhood overweight (Gagahan, 2004; Kavey et al., 2003; Krebs & Jacobson, 2003; Sothern & Gordon, 2003; Whitaker, 2004; Whitaker et al., 1997). Childhood overweight should be a high priority focus of pediatric primary care due to prevalence and long-term implications (Daniels et al., 2005; Dorosty, Emmett, & Reilly, 2000; Jolliffe, 2004; Mei et al., 1998; Sherry et

Clinical Practice	Rationale and Reference
	al., "Trends," 2004).
a. *Pay particular attention to a history of maternal diabetes, including gestational diabetes, because this condition places all exposed children, especially those of* **Native American** *mothers, at significant risk for overweight.*	a. *Exposure to intrauterine diabetes was a risk factor for the development of obesity and diabetes in* **Pima Indian** *children* (Story et al., 2003).
Measurement 2. Perform accurate growth measurements: a. Measure length, weight, and head circumference* from 12 to 23 months of age. b. Measure height and weight ≥24 months of age. c. Perform accurate length or height and weight annually; consider more frequent measurement if at risk of or overweight. *(This is an appropriate measurement although it is not relevant to overweight.)	**Measurement** 2. Early identification is a major focus of the early childhood recommendations based on adiposity rebound (AR) as a critical point and on implications of early rapid growth. AR is the age at which BMI begins to increase following its lowest point or the period of maximum leanness (Gunnarsdottir & Thorsdottir, 2003; Klesges et al., 1995; Krebs & Jacobson, 2003; O'Brien, Holubkov, & Reis, 2004; Parsons et al., 1999; Whitaker, 1998)
3. Perform appropriate assessment for risk of overweight: a. Document weight-for-length on the 2000 CDC growth chart from 12 to 23 months of age. b. Calculate and document BMI percentile on the 2000 CDC growth chart for children ≥24 months of age.	3. "At risk of overweight" is defined as a BMI ≥85th% and <95th% for age and sex. "Overweight" is defined as a BMI ≥95th% for age and sex. In a recent study of overweight children, parent awareness of their child's overweight status was significantly related to readiness to change (Krebs & Jacobson, 2003; Rhee et al., 2005).
c. Monitor serial BMI determinations from 2 years to 5.5 years of age to identify crossing of percentiles or early onset of AR. d. Document on the problem list weight-for-length and BMI of ≥85th% or early AR.	c. Monitoring change in BMI for early AR every 6 months when possible for 3- to 5-year olds would aid early identification of this risk factor for overweight (Daniels et al., 2005). The mean age of AR is 5.5. Adiposity rebound is early if it occurs before age 5 years. Earlier AR increases risk of adult obesity (Dietz, 1994; Dietz & Gortmaker, 2001; Dorosty, 2000; Whitaker, 1998).
4. Perform blood pressure (BP) measurement with appropriate size cuff at every well child visit beginning at age 3 years.	4. Both pre-hypertension and hypertension have become a significant health issue because of the strong association of high BP with overweight and the marked increase in prevalence of overweight

Clinical Practice	Rationale and Reference
a. Document BP percentile for age, sex, and height using 2005 NHLBI charts to identify children with BP readings ≥90th% (pre-hypertensive) and ≥95th% (hypertensive). b. Document on problem list all BP ≥90th% (pre-hypertensive) and ≥95th% (hypertensive). c. Perform follow-up for elevated BP measurement.	children (National High Blood Pressure Education Program, 2004).
Education 5. Educate parents about the child's growth pattern, clearly identifying risk status for overweight when early AR or weight-for-length or BMI ≥85th% occur.	**Education** 5. Childhood overweight should be a high priority focus of pediatric primary care due to prevalence and long-term implications (Jolliffe, 2004; Krebs & Jacobson, 2003; Mei et al., 1998; Sherry et al., "Trends," 2004). Early identification is a major focus of the early childhood recommendations based on AR as a critical point and the implications for overweight of early rapid growth (Gunnarsdottir & Thorsdottir, 2003; Klesges et al., 1995; O'Brien, Holubkov & Reis, 2004; Parsons et al., 1999; Whitaker, 1998).

Section 2. Developmental and Communication Considerations

Clinical Practice	Rationale and Reference
Assessment 1. Monitor parent/child affect and interaction, using the two question depression screen at every well child visit. During the past month have you been bothered by: a. Feeling down, blue, depressed, or hopeless? b. Feelings of little interest or pleasure in doing things?	**Assessment** 1. Parent depression interferes with the ability to read and respond to the child's hunger and satiation cues and often results in a detached parenting style that interferes with optimal feeding and growth. The USPSTF recommends screening for depression among adults, finding the two-question screen as effective as longer screening questionnaires (Berg & Allan, 2002; Johnson & Birch, 1994; Kleinman, 2004; Whitaker et al., 1998).
2. Document areas of strength and concern.	2. Working with families using strength-based approaches increases the likelihood that parents will follow practitioner recommendations and engage in healthful changes (Sindelar et al.,

Clinical Practice	Rationale and Reference
	2004).
3. *Document parents' attitudes, values and beliefs, and spiritual and cultural influences about nutrition, physical activity, and body size and shape; maternal education level; race/ethnicity; religion; preferred language; and preferred type of educational materials.*	3. *AHRQ and IOM reports highlight the need for practitioners to assess parents for their literacy skills and preferred methods for learning to ensure the best level of parent understanding of health information* (Cooper & Powe, 2004; Institute of Medicine [IOM], 2002). *Health information should be available in a variety of formats and languages. Awareness of these issues can aid communication between health care providers and parents.*
Education 4. Educate parents about: a. Expected growth and physical, developmental, and cognitive changes. b. Changes in growth velocity and implications for appetite and food intake.	**Education** 4. Parent understanding of the child's growth and development, needs, and capabilities provides a foundation for good feeding practices (Birch & Davison, 2001; Birch & Fisher, 1998; Butte et al., 2004; Escobar, 1999; Golan & Crow, 2004).
5. Educate parents about strategies for effective communication with their developing child. a. Toddlers have a limited ability to express themselves verbally and need parents to supply words, simple directions, and limited choices. b. Children of all ages need parents to listen to their verbal and non-verbal communication and to respect their feelings and individuality.	5. Feeding is as much a social activity as it is a nutritional activity. Parents who understand their toddler's behavioral cues and help their toddlers grow in the ability to use words and gestures to convey their needs and feelings will increase their chances for a satisfying relationship with their children around feeding and play (Jellinek, Patel & Froele, 2002; Story, Holt, & Sofka, 2000).
6. *Counsel extended family members as well as parents about issues related to the child's health.*	6. *Family is of great importance to all children, and is of special relevance in both the* **Hispanic** and **African American** cultures. *Compadres (godparents) play a significant role in the life of the Hispanic infant. African American grandparents are greatly involved with the upbringing of their grandchildren. Many* **Native American** *households include extended family members (grandparents, aunts, uncles). Promoting healthful eating as well as increasing physical activity was found to be successful if the family of Native Americans was involved. Practitioners are more likely to be successful with their message if the extended family is*

Clinical Practice	Rationale and Reference
	included in the discussion (Barron et al., 2004; Cherry & Giger, 2004, Davis et al., 2003; Estes, 2002; McArthur, Anguiano, & Gross, 2004; NHLBI, 2003).
7. Refer families as needed to appropriate community resources for nutrition and physical activity, including RDs.	7. Practitioners are a vital link between families and local community agencies. They can assist families with needs and concerns and can identify and provide referrals to resources for encouraging positive nutrition and physical activity. RDs are a good resource for parents and children who have complex educational and nutritional management needs. Qualified RDs can be located using the American Dietetic Association (ADA) website http://www.eatright.org (Story, Holt, & Sofka, 2000).
8. Counsel using MI when parents and children are willing to make positive changes: a. Reinforce all positive health behaviors. b. Identify discrepancies between goals and behaviors. c. Develop a plan of action in partnership with the family.	8. MI creates a partnership between the parent, child, and professional to address health issues that parents and children can choose to focus on if they wish. The structured MI approach helps the partners address important health issues in a timely way. Some evidence indicates that MI improves the likelihood of positive patient behavior change (Burke & Fair, 2003; Miller & Rollnick, 2002; Sindelar et al., 2004).

Section 3. Nutrition Essentials, Optimal Feeding, and Eating Behaviors

Clinical Practice	Rationale and Reference
Assessment 1. Monitor nutritional intake for consistency with expert recommendations for age, sex, and activity level at each well child visit or at least annually, including: a. Types, amounts, and frequency of foods and beverages b. Portion sizes c. Variety of foods eaten in each macronutrient group	**Assessment** 1. Expert recommendations are provided by the ADA 2004 *Start Healthy Guidelines for Feeding Infants and Toddlers (Birth to Age 2 years)* and the U.S. Department of Health and Human Services/U.S. Department of Agriculture (HHS/USDA) *2005 Dietary Guidelines for Americans*. The basic mechanism for development of overweight is energy intake exceeding energy expenditure. Toddlers and preschoolers normally vary their intake and activity level from one day to the next (Butte et al., 2004; Escobar, 1999; Picciano et al., 2000; Schwartz & Puhl, 2003; U.S. Department of Health and Human Services and U.S. Department of Agriculture [HHS/USDA], 2005).

Clinical Practice	Rationale and Reference
2. Monitor and document barriers to healthy eating, such as lack of healthy foods, financial barriers, and lack of knowledge about healthful food choices.	2. To best assist parents, health care providers must be aware of barriers that families face in making appropriate food choices (Strauss, & Knight, 1999).
Education 3. Educate parents about recommended nutritional intake for age. a. As age-appropriate, eliminate night-time bottles; do not provide bottle in bed; wean by age 15 months. b. Provide appropriate types, amounts, and portion sizes of healthful foods (see Tables 1 and 2 in the original guideline document). c. Avoid calorie-dense, nutrient-poor foods. d. Limit fast food to no more than twice per week and educate about healthier choices and portion control when eating out. e. Ensure adequate daily calcium intake for age: • 500 to 800 mg per day from 1 to 4 years of age • 800 mg per day from 4 to 8 years of age f. Limit fat intake to 30 to 35% of daily calories. g. Educate about healthier choices for types of fat: • Avoid foods high in trans fats (e.g., cookies, baked goods, doughnuts, french fries). • Use soft margarine rather than butter or stick margarine. • Use low-fat or fat-free dairy products after 2 years of age. • Choose polyunsaturated or monounsaturated fats, such as	**Education** 3. Many parents do not follow expert pediatric nutrition recommendations, receive conflicting advice, and may need assistance in selecting diets that support optimum growth and development (Baker et al., 1999; Committee on Nutrition, 2001; Nicklas, Johnson, & American Dietetic Association, 2004; Bonuck, Kahn, & Schechter, 2004; Butte et al., 2004; Escobar, 1999; Kavey et al., 2003; Kleinman, 2004; Krebs & Jacobson, 2003; HHS/USDA, 2005; Welsh et al., 2005).

Clinical Practice	Rationale and Reference
those found in fish, nuts, and vegetable oils.	
h. Encourage 5 servings each day of fruits and vegetables. i. Select whole grain products for at least half of grains eaten. j. Provide healthful snacks in appropriate portion sizes and limit prepared snack foods, such as chips, cake, and candy. k. Limit 100% fruit juice to 4 to 6 oz per day, and avoid consumption of fruit drinks and sodas; use only water in sippy cups. l. Encourage consumption of water and low or fat-free milk after 2 years rather than sweetened beverages.	h. Fruits and vegetables supply many micronutrients and needed fiber while providing fewer calories. Canned and frozen fruits and vegetables can be as nutritious as fresh (HHS/USDA, 2005). www.nutrition.gov
4. Educate parents about how to carry out promising feeding practices, including: a. Balance energy intake from food with energy output in physical activity (see Table 1 in the original guideline document). b. Recognize hunger and satiation cues in toddlers and preschoolers. c. Respect self-regulation of intake based on satiety.	
d. Eat together as a family as often as possible to increase quality of nutrition and enhance family connectedness. e. Support the development of self-feeding skills by providing age appropriate utensils, seating, and expectations for neatness.	d. When children eat regularly with families, they increase their intake of fruits, vegetables, fiber, and micronutrients from food; consume fewer fried foods, less soda, and less saturated and trans fat; and have a lower glycemic load. Family mealtime is a time that parents convey their cultural beliefs and values to their young children, and a "typical weekday family meal" is a potent way to shape a child's learning about nutrition and eating (Birch & Davison, 2001; Birch & Fisher, 1998; Escobar, 1999).
f. Recognize that parents are responsible for providing healthful food choices at appropriate intervals and	f. It is recommended that parents implement this division of responsibility in feeding because it avoids needless and potentially

Clinical Practice	Rationale and Reference
settings (what, where, when) and the child is responsible for deciding whether to eat and how much to eat. g. Purchase and prepare only healthy foods and drinks, including snacks. h. Encourage the child to eat a healthful breakfast daily.	harmful struggles for control. This division of responsibility is supported by the AAP in their on-line and print nutritional resources for parents (Dietz & Stern, 1999; Johnson & Birch, 1994).
5. Educate parents about how to avoid less optimal feeding practices and deal with common feeding difficulties: a. Avoid use of the "clean plate" policy. b. Avoid use of food as a bribe or reward; offer food only to satisfy hunger. c. Avoid use of food for comfort; recognize emotional triggers for eating and substitute alternative coping strategies.	5. Research studies show that when parents withhold favorite foods, children crave those foods more and tend to overeat when they do have access to them. The best strategy is to only offer healthful foods and snacks and relatively small portions (Faith et al., 2004).
d. Overcome neophobia (fear of new foods) by continuing to offer rejected foods along with favored foods at mealtimes. e. Provide positive verbal recognition of child's efforts to try new foods or select healthful foods and drinks. f. Avoid use of food-withholding strategies.	d. Neophobia is the tendency to refuse new foods on first several exposures. It may require up to 15 exposures to overcome (Birch & Fisher, 1998; Escobar, 1999).
6. *Counsel with emphasis on the positive health consequences of good nutrition rather than focusing on the child's weight.*	6. **Hispanics**: *In the Hispanic culture, thinness is often associated with poor health, and there is often the perception that a little extra weight is necessary for children in order to help them recover from illness* (Crawford et al., 2001; McArthur, Anguiano, & Gross, 2004). **African Americans**: *African Americans are more tolerant of larger body size and caregivers seldom perceive their children as obese* (American Obesity Association, 2005; Stettler et al., 2003). *Practitioners may be more successful at establishing rapport with Hispanic and African American families if the discussion is initially focused on health, not*

Clinical Practice	Rationale and Reference
	necessarily weight.
7. *Counsel parents to offer traditional foods and not to offer children alternative foods when they refuse traditional foods.* **Hispanics and Native Americans**: *beans, corn tortillas, vegetables* **African American**: *fruits and vegetables*	7. *Frequent exposure to food is important in developing food preferences, and traditional foods tend to be highly nutritious* (Kaiser et al., 2001; Sherry et al., "Attitudes," 2004; Story et al., 2003; Young-Hyman et al., 2000).

Section 4. Physical Activity and Sedentary Behavior

Clinical Practice	Rationale and Reference
Assessment 1. Monitor at least annually: a. Daily physical activity level, type, and amount b. Daily types and amounts of sedentary behavior c. Barriers to physical activity (e.g., safety, access, cost)	**Assessment** 1. Physical activity recommendations are based on the need to balance energy intake and output to prevent overweight. They also are based on the premise that early childhood is a critical time to establish positive attitudes toward physical activity and prevent lifetime sedentary practices. From 12 months on, all children should have at least 60 minutes of active play daily (Burdette & Whitaker, 2005; Klesges et al., 1995; Kohl & Hobbs, 1998; Krebs & Jacobson, 2003; NASPE, 2002).
Education 2. *In counseling, emphasize the positive health consequences of increased physical activity rather than focusing on the child's weight.*	**Education** 2. **Hispanics**: *Average physical activity is lower among Hispanic children than white children and adolescents* (Crawford et al., 2001; McArthur, Anguiano, & Gross, 2004). **African Americans**: *Statistically, heads of household in this population are less likely to do well with weight loss programs, which decreases their attempts to change their children's weight status* (Stettler et al., 2003). **Native Americans**: *Native American children are not physically active on a regular basis. A collaborative relationship that involves the Native American community is essential for programs to succeed. Encourage any games that may be traditional for a specific tribe* (Going et al., 2003; Story et al., 2003).
3. Educate parents and children about age-appropriate physical	3. The physical activity recommendations are based on the need to balance energy intake and

Clinical Practice	Rationale and Reference
activity and how to incorporate it into daily family routines. a. From 12 months of age on, at least 60 minutes of active play daily is recommended.	output to prevent overweight. They also are based on the premise that early childhood is a critical time to establish positive attitudes toward physical activity and prevent lifetime sedentary practices (Burdette & Whitaker, 2005; Klesges et al., 1995; Kohl & Hobbs, 1998; Krebs & Jacobson, 2003; NASPE, 2002).
4. Educate parents about the value of family activities and parent modeling of positive physical activity behaviors.	4. Practitioners may be more successful at increasing the child's activity level if the family participates in the activity. This is true for all cultural groups.
5. Educate parents about media influence on health-related behaviors (especially the young child's susceptibility to persuasion by TV advertising) and how to carry out promising screen time practices: a. Turn off TV during meals. b. Avoid all forms of screen time before 2 years of age, and limit screen time to no more than 2 hours per day from 2 years on. c. Monitor the child's time to ensure a balance between screen time and physical activity. d. Do not allow a TV in the child's bedroom.	5. Children who spend more time with television are more likely to be overweight than children who do not. The more time children spend watching TV, the less likely they are to develop early reading skills, something many parents value for their child and that may encourage action to limit TV time (AAP Committee on Public Education, 2001; Certain & Kahn, 2002; Daniels et al., 2005; Dennison, Erb, & Jenkins, 2002; Henry J. Kaiser Family Foundation, 2004; Proctor, et al., 2003; Rideout, Vandewater, & Wartella, 2003).

Section 5. Advocacy

Clinical Practice	Rationale and Reference
Parents 1. Advocate for optimal childcare/preschool menus, feeding, and eating routines.	**Parents** 1. Early AR increases the risk of obesity in later childhood and adolescence. (Butte et al., 2004; Kleinman, 2004; HHS/USDA, 2005; Whitaker et al., 1998). A healthful diet is essential to preventing early AR.
2. Advocate for communities to provide safe, outdoor play areas for toddlers and preschoolers: a. Weekend or after-school programs through community recreation centers	2-6. Fostering a child's sense of competency and fun regarding physical activity may increase participation in vigorous activities and help prevent obesity (Action for Healthy Kids, 2003; French, Story, & Jeffery, 2001).

Clinical Practice	Rationale and Reference
b. Swimming programs c. Playground activities (indoor or outdoor) d. YMCAs 3. Advocate for providing preschool children with high-quality daily physical activity. 4. Advocate for positive public media messages about the value of family participation in physical activity. 5. Advocate for community playgroups and other resources that foster outdoor physical activity. 6. Advocate for and select childcare/preschool facilities that emphasize time for unstructured play and supervised active play and that avoid screen time.	
Providers 7. Advocate for improved nutritional information through WIC. 8. Advocate for community, zoning, enterprise, and tax laws that favor grocers who are willing to locate in low-income neighborhoods. 9. Advocate with state and local childcare programs to focus on educational efforts of childcare workers in teaching healthy eating and physical activity habits.	**Providers** 7-9. Health professionals play a key role in identifying evidence-based changes and supporting fellow professionals and the families they serve in lobbying for important changes for the community's health (Butte et al., 2004;).
10. Monitor and document quality community and web resources on health-promoting nutrition in early childhood: a. Appropriate portion size for growing toddlers and preschoolers. b. Nutritious components of a healthy daily menu for toddlers and preschoolers.	10. Early AR increases the risk of obesity in later childhood and adolescence (Butte et al., 2004; Kleinman, 2004; HHS/USDA, 2005; Whitaker et al., 1998). A healthful diet is essential to preventing early AR.

Clinical Practice	Rationale and Reference
c. Nutritious content of food products.	

School Age (5 to 10 years)

Section 1. Early Identification

Clinical Practice	Rationale and Reference
History 1. Document and annually update a three-generation family health history, including: overweight, hypertension, diabetes mellitus, gestational diabetes, CHD before 55 years in men and 65 years in women, smoking and passive smoke exposure, gestational age and birth weight of the child, and parent self-report of height, weight, and educational level.	**History** 1. It is important to identify early risk factors and potential co-morbidities (Kavey et al., 2003; Krebs & Jacobson, 2003). Obesity in one or both parent(s) is a risk factor for overweight in children, as is low income status (Danielzik et al., 2004; Whitaker et al., 1997).
a. *Pay particular attention to a history of maternal diabetes, including gestational diabetes, because this condition places all exposed children, especially those of* **Native American** *mothers, at significant risk of overweight.*	a. *Exposure to intrauterine diabetes was a risk factor for the development of obesity and diabetes in* **Pima Indian** *children* (Story et al., 2003).
Measurements 2. Perform accurate height and weight annually; consider more frequent measurement if at risk of or overweight. 3. Perform assessment for risk of overweight: a. Calculate and document BMI on the 2000 CDC growth chart for children. b. Document on the problem list BMI of $\geq$85th%.	**Measurements** 2, 3. An accurate height and weight is necessary in order to calculate an accurate BMI. Routine measurement of height and weight in primary care settings has been noted to vary greatly in accuracy (Lipman et al., 2004). It is important to track BMI to ensure early recognition of an increase in weight to linear growth. This monitoring can be facilitated by routine calculation and plotting of BMI (Kavey et al., 2003; Koplan, Liverman, & Krak, 2005; Krebs & Jacobson, 2003).
4. Perform BP measurement with appropriate size cuff at every well child visit. a. Document BP percentile for age, sex, and height using 2005 NHLBI charts to identify children with BP readings $\geq$90th% (pre-hypertensive) and $\geq$95th% (hypertensive). b. Document on problem list all BP	4. Children who have a BMI $\geq$85th% are at risk of having an elevated BP for age and gender. Early detection of elevated BP is important to maintain cardiovascular health (Freedman et al, 1999; Kavey et al., 2003; Muntner et al., 2004; Paradis et al., 2004; Rosner et al., 2000).

Clinical Practice	Rationale and Reference
≥90th% (pre-hypertensive) and ≥95th% (hypertensive). c. Perform follow-up for elevated BP measurement.	
5. Perform a fasting glucose level, total cholesterol, and/or lipid panel to assess for diabetes mellitus, hyperlipidemia, and metabolic syndrome if the child's BMI is ≥95%.	5. Providers must recognize other health-related risks and/or consequences of overweight (Kavey et al., 2003; Krebs & Jacobson, 2003). The prevalence of metabolic syndrome is high among overweight children and escalates with increasing degree of overweight. Biomarkers of increased risk of adverse cardiovascular outcomes are already present in these children (Weiss et al., 2004).
Physical Exam 6. Perform Sexual Maturity Rating (Tanner Stage) annually.	**Physical Exam** 6. Early appearance of secondary sexual characteristics is associated with overweight in females before age 8 (Adair & Gordon-Larsen, 2001).
Education 7. Educate parents about the child's growth pattern, clearly identifying risk status for overweight when BMI ≥85th% occurs.	**Education** 7. Increased knowledge by parents about their child's growth status can be a strong motivator. In a recent study, parent awareness of their child's overweight status was significantly related to readiness to change (Koplan, Liverman, & Krak, 2005; Rhee et al., 2005).

Section 2. Developmental and Communication Considerations

Clinical Practice	Rationale and Reference
Assessment 1. Monitor parent/child affect, using the two-question depression screen with both parent and child at every well child visit. During the past month have you been bothered by: a. Feeling down, blue, depressed, or hopeless? b. Feelings of little interest or	**Assessment** 1. The USPSTF recommends screening for depression among adults, finding the two-question screen as effective as longer screening questionnaires. The prevalence of depression is increasing among school-age children. Both overeating and anorexia occur more often among depressed children than among unaffected peers. Providers need to make this assessment so that they can intervene appropriately (Berg & Allan, 2002; Grunbaum et al., 2004; Mustillo et al., 2003; Schwimmer, Burwinkle, & Varni, 2003; Whooley et al., 1997).

Clinical Practice	Rationale and Reference
pleasure in doing things?	
2. Document areas of strength and concern.	2. Health care providers can help families communicate better by identifying specific focal points for intervention. Working with families using strength-based approaches increases the likelihood that parents will follow practitioner recommendations and engage in healthful changes (Hart et al., 2003; Kavey et al., 2003; Krebs & Jacobson, 2003).
3. Monitor child's social and emotional development by inquiring about school-related behavior, peer interactions, bullying, activity in and out of school, and academics.	3. Children with increased BMI are more likely than normal-weight children to report being victimized or bullied by others and bullying others (Janssen et al., 2004).
4. *Document parent's attitudes, values and beliefs, and spiritual and cultural influences about nutrition, physical activity, and body size and shape; maternal education level; race/ethnicity; religion; preferred language; and preferred type of educational materials.*	4. *Families are important role models and influence the nutritional and physical activity habits of children* (Koplan, Liverman, & Krak, 2005, Krebs & Jacobson, 2003). *Children and parents may have different views of healthy eating and activity* (Moag et al., 2003).
Education 5. Educate parents about: a. Expected growth and physical, developmental, and emotional changes. b. Changes in growth velocity and implications for appetite and food intake.	**Education** 5. Awareness of such issues can aid communication between health care providers, parents, and patients.
6. Educate parents about strategies for effective communication with the developing child: a. Truly listen to the child's verbal and non-verbal communication. b. Respect the child's feelings. c. Respect the child's individuality.	6. Data from Melnyk et al. show that parents are likely to be unaware of the worries and needs of their children. Health care providers can help families communicate better by identifying strengths and barriers to good communication (Kavey et al., 2003; Krebs & Jacobson, 2003; Melnyk et al., 2002).
7. *Counsel extended family members as well as parents about issues related to the child's health.*	7. *Family is of great importance to all children, and is of special relevance in both the* **Hispanic** *and* **African American** *cultures. Compadres (godparents) play a significant role in the life of*

Clinical Practice	Rationale and Reference
	the Hispanic child. African American grandparents are greatly involved with the upbringing of their grandchildren. Many **Native American** *households include extended family members (grandparents, aunts, uncles). Promoting healthful eating as well as increasing physical activity was found to be successful if the family of Native Americans was involved. Practitioners are more likely to be successful with their message if the extended family is included in the discussion* (Barron et al., 2004; Cherry, & Giger, 2004; Davis et al., 2003; Estes, 2002; McArthur, Anguiano, & Gross, 2004; NHLBI, 2003).
8. Refer family as needed to appropriate community nutrition and physical activity resources, including RDs.	8. Practitioners are a vital link between families and local community agencies. They can assist families with needs and concerns and can identify and provide referrals to resources for encouraging positive nutrition and physical activity. RDs are a good resource for parents and children who have complex educational and nutritional management needs. Qualified RDs can be located using the American Dietetic Association (ADA) website http://www.eatright.org (Story, Holt, & Sofka, 2000).
9. *Educate families and children using culturally appropriate curricula (e.g., the Pathways curriculum developed for* **Native American** *families and children).*	9. *Pathways was a multi-site school-based study that included 1,704* **American Indian** *children in third to fifth grade and was aimed at promoting healthful eating and increasing physical activity. The curriculum includes content that is culturally appropriate for Native Americans. This curriculum can be accessed at http://hsc.unm.edu/pathways* (Going et al., 2003).
10. Counsel using MI when parents and children are willing to make positive changes. a. Reinforce all positive health behaviors. b. Identify discrepancies between goals and behaviors. c. Develop a plan of action in partnership with the family.	10. MI creates a partnership between the parent, child, and professional to address health issues that parents and children can choose to focus on if they wish. The structured MI approach helps the partners address important health issues in a timely way. Some evidence indicates that MI improves the likelihood of positive patient behavior change (Burke & Fair, 2003; Miller & Rollnick, 2002; Sindelar et al., 2004).

Section 3. Nutrition Essentials, Optimal Feeding, and Eating Behaviors

Clinical Practice	Rationale and Reference
Assessment	**Assessment**

Clinical Practice	Rationale and Reference
1. Monitor nutritional intake for consistency with expert recommendations for age, sex, and activity level at each well child visit or at least annually, including: a. Types, amounts, and frequency of foods and beverages b. Portion sizes c. Variety of foods eaten in each macronutrient group d. Types of dietary supplements	1. Expert recommendations are provided by the HHS/USDA *2005 Dietary Guidelines for Americans*. Providers need to make this assessment in order to make appropriate suggestions for change to promote healthier eating patterns if needed (Koplan, Liverman, & Krak, 2005; HHS/USDA, 2005).
2. Monitor and document barriers to healthy eating, such as lack of healthy foods, financial barriers, and lack of knowledge about healthful food choices.	2. To best assist parents, health care providers must be aware of barriers that families face in making appropriate food choices (Strauss & Knight, 1999).
Education 3. Educate parents about recommended nutritional intake for age and about appropriate types, amounts, and portion sizes of healthful foods (see Tables 1 and 2 in the original guideline document). a. Select whole grain products for at least half of grains eaten. b. Eat 5 or more servings of fruits and vegetables daily (serving = 1/2 cup). Regularly select vegetables from all subgroups, including dark green, orange, legumes, and starchy vegetables (about 1/3 of intake should come from each color grouping).	**Education** 3. Excessive calorie intake can be mitigated by focusing on healthy foods, limiting portion size, and limiting foods that are high in calories and low in nutrients (Koplan, Liverman, & Krak, 2005; Krebs & Jacobson, 2003; HHS/USDA, 2005).

Clinical Practice	Rationale and Reference
c. Choose appropriate types, amounts, and portion sizes of healthful foods (see Table 2 in the original guideline document).	c. Because food portions have increased in most foods for children ages 2 to 18, it is important to limit or teach appropriate portion size, and to help children recognize satiety. Sensations of satiety occur 20 minutes into eating. Therefore it is important to eat slowly enough to allow feelings of fullness to guide intake (Barlow & Dietz, 1998; Koplan, Liverman, & Krak, 2005; Krebs & Jacobson, 2003; Nielsen & Popkin, 2003).
d. Avoid calorie-dense, nutrient-poor foods.	d. Servings of fruits and vegetables can be substituted for high-fat foods in order to reduce calories and increase nutrient intake (Epstein et al., 2001; Gortmaker et al., 1999).
e. Limit fast food to no more than twice per week and educate about healthier choices and portion control when eating out.	e. Consistently eating fast food is associated with an increase in BMI over time (Thompson et al., 2004).</td<>
f. Ensure adequate daily calcium intake for age: • 800 mg per day between 4 and 8 years of age • 1,200 to 1,500 mg per day between 9 and 19 years of age	f. Lower consumption of calcium and dairy products has been associated with overweight (Dietz & Stern, 1999; HHS/USDA, 2005).
g. Limit fat intake to 25 to 35% after 4 years of age. h. Make healthier choices for types of fat: • Avoid foods high in trans fats (e.g., cookies, baked goods, doughnuts, french fries). • Use soft margarine rather than butter or stick margarine. • Use low-fat or fat-free dairy products. • Choose polyunsaturated or monounsaturated fats, such as those found in fish, nuts,	g–i. It is important to limit foods high in refined sugar and saturated fats, as these can lead to increased adiposity. Between 1970 and 2003, Americans increased their daily intake of calories by 23%, fat by 50.5%, intake of refined sugar by 18.9%, and refined grains by 44.3% (Kavey et al., 2003; HHS/USDA, 2005). http://www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm

Clinical Practice	Rationale and Reference
and vegetable oils i. Provide healthful snacks in appropriate portion sizes and limit prepared snack foods, such as chips, cake, and candy.	
j. Limit 100% fruit juice to 4 to 6 oz per day and avoid consumption of fruit drinks and sodas.	j. Sweetened drinks and increased weight gain in children are positively associated (Harnack, Strang, & Story, 1999; James et al., 2004; Ludwig, Peterson, & Gortmaker, 2001; HHS/USDA, 2005).
k. Encourage consumption of water and low or fat-free milk rather than sweetened beverages.	k. Low- and fat-free dairy products are a nutritious snack option (Krebs & Jacobson, 2003; HHS/USDA, 2005).
4. Educate parents about how to carry out promising feeding practices, including:	
a. Recognize changes in growth velocity and associated changes in appetite and need to balance energy intake from food with energy output in physical activity (see Table 1 in the original guideline document).	a. Educate parents about changes/increases in appetite associated with onset of puberty (Story, Holt, & Sofka, 2000).
b. Be a positive role model for healthful eating behaviors.	b. Recent studies demonstrate that changes in child dietary behavior is strongly supported by positive role modeling by the parent (Brown & Ogden, 2004; Patrick & Nicklas, 2005; Wrotniak et al., 2005).
c. Recognize the value of family meals and have them as often as possible to increase quality of nutrition and enhance family connectedness.	c. When children eat regularly with families, they increase their intake of fruits, vegetables, fiber, and micronutrients from food; consume fewer fried foods, less soda, and less saturated and trans fat; and have a lower glycemic load. Parent role modeling of good nutrition and eating behaviors is associated with both parent and child weight loss (Barlow & Dietz, 1998; Gillman et al., 2000; Wrotniak et al., 2005).
d. Recognize that parents are responsible for providing healthful food choices at appropriate intervals and settings (what, where, when) and the child is responsible for deciding whether to eat and how much to eat.	d. It is recommended that parents implement this division of responsibility in feeding because it avoids needless and potentially harmful struggles for control. This division of responsibility is supported by the AAP in their on-line and print nutritional resources for parents (Dietz & Stern, 1999; Koplan, Liverman, & Krak, 2005).
e. Purchase and prepare	e. Research shows that many parents do not believe

Clinical Practice	Rationale and Reference
only healthful foods and drinks, including snacks.	they have control over their child's nutritional choices and buy into the myth of healthy eating as restrictive, expensive, and beyond their reach. Practitioners need to correct these perceptions and support parents in assuming their important role in providing and modeling good nutritional habits (Brown & Ogden, 2004; Hart et al., 2003; Patrick & Nicklas, 2005).
f. Encourage the child to eat a healthful breakfast daily.	f. Eating breakfast helps to ensure a steady metabolic rate throughout the day, increasing the likelihood of avoiding overweight. Eating breakfast also is associated with better school performance and behavior (HHS/USDA, 2005).
g. Prepare children to select and prepare healthful foods and drinks.	g. Involving children in selecting and preparing foods facilitates their self-care skills and provides useful learning opportunities about good choices at a time when their buying power, decision-making opportunities, and peer influences are increasing (Patrick & Nicklas, 2005; Roberts, Blinkhorn, & Duxbury, 2003).
5. Educate parents about avoiding less optimal feeding practices: a. Avoid use of a "clean plate" policy. b. Avoid use of food for comfort; recognize emotional triggers for eating and substitute other coping strategies. c. Avoid restrictive and fad diets.	5. Eating a variety of foods is more likely to provide all essential and other biologically beneficial nutrients. It is essential for a healthy lifestyle and is associated with fewer health deficits (Epstein et al., 2001; Gortmaker et al., 1999; Kleinman, 2004). Research studies show that when parents withhold favorite foods, children crave those foods more and tend to overeat when they do have access to them. The best strategy is to offer only healthful foods and snacks and relatively small portions (Faith et al., 2004).
6. *Counsel with emphasis on the positive health consequences of good nutrition rather than focusing on the child's weight.*	6. **Hispanics**: *In the Hispanic culture, thinness is often associated with poor health, and there is often the perception that a little extra weight is necessary for children in order to help them recover from illness* (Crawford et al., 2001; NHLBI, 2003). **African Americans**: *African Americans are more tolerant of larger body size and caregivers seldom perceive their children as obese* (American Obesity Association, 2005; Stettler et al., 2003). *Practitioners may be more successful at establishing rapport with Hispanic and African American families if the discussion is initially focused on health, not necessarily weight.*
7. *Counsel parents to offer traditional foods and not to offer children alternative foods when they refuse traditional foods.*	7. *Frequent exposure to food is important in developing food preferences and traditional foods tend to be highly nutritious* (Kaiser, 2001; Sherry et al., "Attitudes," 2004; Story et al., 2003; Young-Hyman et al., 2000).

Clinical Practice	Rationale and Reference
Hispanics and Native Americans: *beans, corn, tortillas, and vegetables* **African Americans**: *fruits and vegetables*	**Hispanics**: *School aged children are receptive to family-based activities, and meal preparation helps to reinforce good dietary practices* (McArthur, Anguiano, & Gross, 2004).

Section 4. Physical Activity and Sedentary Behavior

Clinical Practice	Rationale and Reference
Assessment 1. Monitor at least annually: a. Daily physical activity level, type, and amount	**Assessment** 1a. Daily, regular physical activity in the school aged child promotes healthful behavior and decreases the risk of co-morbidities associated with overweight (CDC, 2003; Corbin & Pangrazi, 2003; Crespo et al., 2001; Goran, Reynolds, & Lindquist, 1999; Gortmaker et al, 1999; Kavey et al., 2003; Kimm et al., "Decline," 2002; Koplan, Liverman, & Krak, 2005; Krebs & Jacobson, 2003; McKenzie et al., 1996; Sallis et al., 1997).
b. Daily types and amounts of sedentary behavior	b. Sedentary activities are associated with increased incidence of overweight and may limit other opportunities for appropriate social development (Barlow & Dietz, 1998; Birch, Fisher, & Davison, 2003; Gortmaker et al, 1999; Janssen et al., 2004; Kavey et al., 2003; Krebs & Jacobson, 2003; Lipman et al., 2004; Robinson, 1999; Rosner et al., 2000).
c. Barriers to performing activity (e.g. safety, access, cost)	c. Research has shown multiple barriers associated with engaging in physical activity for children and their families. Awareness of barriers provides an opportunity for practitioner, parent, and child to engage in problem-solving to overcome barriers (Hart et al., 2003; Ritchie et al., 2005; Trost et al., 2003).
Education 2. *Counsel with emphasis on the positive health consequences of increased physical activity rather than focusing on the child's weight.*	**Education** 2. **Hispanics**: *Average physical activity is lower among Hispanic children than among white children* (Crawford et al., 2001; Fitzgibbon et al., 2002; McArthur, Anguiano, & Gross, 2004). **African Americans**: *Statistically, heads of household in this population are less likely to do well with weight loss programs, which decreases their attempts to change their children's weight status* (Stettler et al., 2003). **Native Americans**: *Native American children are not physically active on a regular basis. A collaborative*

Clinical Practice	Rationale and Reference
	relationship that involves the Native American community is essential for a program to be successful. Encourage any games that may be traditional for a specific tribe (Going et al., 2003; Story et al., 2003).
3. *Educate parents and children about age-appropriate physical activity and how to incorporate it into daily family routines.*	3. *Practitioners may be more successful in increasing the child's activity level for* **Hispanics, African Americans**, *and* **Native Americans** *if they educate families to participate in the activities together.*
a. At least 60 minutes daily of intermittent, moderate to vigorous physical activity.	a. Daily, regular physical activity in the school aged child promotes healthful behaviors and decreases risk of co-morbidity (CDC, 2003; Corbin & Pangrazi, 2003; Crespo et al., 2001; Goran, Reynolds, & Lindquist, 1999; Gortmaker et al, 1999; Kavey et al., 2003; Kimm et al., "Decline," 2002; Koplan, Liverman, & Krak, 2005; Krebs & Jacobson, 2003; McKenzie et al., 1996; Sallis et al., 1997; Strong et al., 2005).
4. Educate parents about the value of family activities and parent modeling of positive physical activity behaviors.	4. Increased recreational screen time is associated with greater adiposity in children (Andersen et al., 1998; Campbell et al., 2005; Crespo et al., 2001; Krebs & Jacobson, 2003; Robinson, 1999; Trost et al., 2003; Wiecha et al., 2001).
5. Educate parents about media influence on health-related behaviors and how to carry out promising screen time practices:	5. Increased recreational screen time is associated with greater adiposity in children (Andersen et al., 1998; Campbell et al., 2005; Crespo et al., 2001; Krebs & Jacobson, 2003; Ritchie et al., 2005; Robinson, 1999; Saelens et al., 2002; Strong et al., 2005; Wiecha et al., 2001). Awareness of media influences on food and physical activity choices may improve eating habits.
a. Turn off TV during meals.	a. Food types and quantities eaten may be influenced by TV watching (Andersen et al., 1998; Robinson, 1999).
b. Limit screen time to no more than 2 hours per day.	b. AAP recommendation (Krebs & Jacobson, 2003; Robinson, 1999).
c. Monitor the child's time to ensure a balance between screen time and physical activity d. Do not allow a TV in the child's bedroom.	c., d. Increased TV viewing—especially in the bedroom—leads to increased inactivity and increased weight gain (Dennison, Erb, & Jenkins, 2002).

Section 5. Advocacy

Clinical Practice	Rationale and Reference
School Age Children 1. Advocate that all foods and beverages sold or served to students in school be healthful and meet accepted nutritional content	**School Age Children** 1. Schools should provide a consistent environment that is conducive to healthful eating behaviors and regular

Clinical Practice	Rationale and Reference
standards.	physical activity (IOM, 2004; Koplan, Liverman, & Kraak, 2005).
2. Advocate for retention of physical education time in schools.	2. Higher student fitness levels are associated with higher performance on standardized achievement tests (National Institute for Health Care Management Foundation Forum, 2003). A 2000 survey found that only 8.0% of elementary schools, 6.4% of middle/junior high schools, and 5.8% of senior high schools provided daily physical education (PE) for the entire school year for all of the students in each grade ("Physical fitness," 2000; IOM, 2004).
3. Advocate for classroom involvement in school nutrition and physical education activities: • Prepare classroom activities to teach origin of foods used in local diet. • Prepare a user-friendly resource corner on nutrition for parents and children. • Advocate for volunteers to promote supervised physical activity during school recess. • Organize fellow students to develop media messages about healthy eating and physical activity for local radio stations and school assemblies.	3. The Snack-Wise Nutrition Rating System helps consumers select smarter snack choices through an easy-to-recognize color code of green (best choice), yellow (choose occasionally), or red (choose rarely) (Borden Center for Nutrition & Wellness, 2005). Coordinated changes in the classroom curriculum, the in-school advertising environment, school health services, and after-school programs all offer the potential to advance overweight prevention efforts (IOM, 2004; The National Alliance for Nutrition and Activity, 2005).
Parents and Teachers 4. Perform the School Health Index, a self-assessment and planning tool, on your local school to improve school policies and programs. To order, email HealthyYouth@cdc.gov or visit http://apps.nccd.cdc.gov/shi/.	**Parents and Teachers** 4. The assessment and planning tool will provide direction for needed changes (CDC, "Healthy youth," 2005).
5. Advocate for daily physical education.	5. Higher student fitness levels are associated with higher performance on standardized achievement tests (CDC, 2003; National Institute for Health Care Management Foundation Forum, 2003).
6. Advocate for improved school lunches that: a. Provide a variety of healthy foods from which to select.	6. Schools should engage students and parents, through taste-tests of new entrees and surveys, in selecting foods sold through the school meal

Clinical Practice	Rationale and Reference
b. Emphasize appropriate portion sizes. c. Minimize foods high in fat and calories but low in nutrient content.	programs in order to identify new, healthful, and appealing food choices. In addition, schools should share information about the nutritional content of meals with parents and students (The National Alliance for Nutrition and Activity, 2005).
7. Advocate for restricted vending machine sales and conversion to healthy foods and beverage selections, such as: a. Low-fat snacks b. Fresh or canned fruits c. Water and low- or fat-free milk	7. By law, in some states, the only beverages that may be sold in school vending machines are water, milk, and 100% fruit juices or fruit-based drinks that are at least 50% fruit juice with no added sweeteners. All "other foods" sold in schools (including those sold in vending machines, at fundraisers during the school day, and at school functions) must reflect the Dietary Guidelines or meet the USDA standard for a lunch component (Hearne et al., 2005).
8. Advocate for parent and teacher involvement on community and school boards that make decisions on school nutrition and physical education.	8. Many schools around the nation have reduced their commitment to provide students with regular and adequate physical activity. Low levels of physical activity are consistently linked to overweight in children (Action for Healthy Kids, 2003; IOM, 2004; Krebs & Jacobson, 2003).
Providers 9. Advocate in schools to raise awareness of the importance of physical activity programs and policies. a. Speak out at local schools. b. Take a leadership role in promoting physical education in schools.	**Providers** 9. Many schools around the nation have reduced their commitment to provide students with regular and adequate physical activity. Low levels of physical activity are consistently linked to overweight in children (Action for Healthy Kids, 2003; IOM, 2004; Krebs & Jacobson, 2003).
10. Educate parents, students, and school staff regarding diversity of children and tolerance and acceptance of all body types and physical abilities.	10. Overweight children often suffer from low self-esteem, depression, and/or fear of being bullied or teased (especially in physical education class). This may lead to avoidance of physical activity or outside activities, which may exacerbate the problem. Stigmatization of obesity is very real. All children want to feel included and competent (Berg et al., 2003; Schwartz & Puhl, 2003).
11. Advocate for the formation of School Health Advisory Committees.	11. Each school should establish and maintain a School Health Advisory

Clinical Practice	Rationale and Reference
a. Practitioners can encourage parents, teachers, other professionals, and youth leaders to join together and assess needs, develop plans, and implement policies related to physical activity and healthy eating in their communities. b. These committees should develop clear, positive physical activity and nutrition messages.	Committee (composed of at least one staff member, one school health council member, and possibly a local hospital representative, dietitian or other health professional, recreation program representative, union representative, or employee benefits specialist) that reports to the school health council (The National Alliance for Nutrition and Activity, 2005).

TEEN (11 to 21 years)

Section 1. Early Identification

Clinical Practice	Rationale and Reference
History 1. Document and annually update a three-generation family health history, including: overweight, hypertension, diabetes mellitus, gestational diabetes, CHD before 55 years in men and 65 years in women, smoking and passive smoke exposure, gestational age and birth weight of the child, and parent self-report of height, weight, and educational level.	**History** 1. Genetics play an important role in the development of overweight; obesity in one or both parents is a risk factor for overweight in teens, as is low income status (Whitaker et al., 1997). Providers must recognize populations and individuals at risk of becoming overweight and be alert for the co-morbidities of overweight (Danielzik et al., 2004; Kavey et al., 2003; Krebs & Jacobson, 2003).
a. *Pay particular attention to a history of maternal diabetes, including gestational diabetes, because this condition places all exposed children, especially those of* **Native American** *mothers, at significant risk of overweight*.	a. *Exposure to intrauterine diabetes was a risk factor for the development of obesity and diabetes in* **Pima Indian** *children* (Story et al., 2003).
Measurements 2. Perform accurate height and weight annually; consider more frequent measurement if at risk of or overweight.	**Measurements** 2. An accurate height and weight is necessary to calculate an accurate BMI. Routine measurements in primary care settings have been noted to vary greatly in accuracy (Lipman et al., 2004).
3. Perform assessment of risk of overweight: a. Calculate and document BMI on the 2000 CDC growth chart. b. Document on the problem list BMI $\geq$ the 85th%.	3. Early recognition of increases in weight to linear growth can be helped by calculating and plotting BMI routinely (Iuliano-Burns, Mirwald, & Bailey, 2001; Krebs & Jacobson, 2003). Tracking BMI increases provider, teen, and parent awareness of trends in weight. Parental awareness of their child's weight status

Clinical Practice	Rationale and Reference
	results in greater readiness to assist the teen in achieving a healthy weight (Barlow & Dietz, 1998: Himes & Dietz, 1994; Kavey et al., 2003; Wrotniak et al., 2005).
4. Perform BP measurement with appropriate size cuff at every well teen visit: a. Document BP percentile for age, sex, and height using NHLBI charts to identify teens with BP readings ≥90th% (pre-hypertensive) and ≥95th% (hypertensive). b. Document on problem list all BP ≥90th% (pre-hypertensive) and ≥95th% (hypertensive). c. Perform follow-up for elevated BP measurement.	4. Providers can recognize changes and discuss changes or patterns with parents and the teen as relates to normal growth and BP or movement into at-risk status for overweight or hypertension. Early detection of elevated blood pressure is important to maintain cardiovascular health because it permits early initiation of treatment (Freedman et al., 1999; Kavey et al., 2003; Muntner et al., 2004, Paradis et al., 2004; Rosner et al., 2000).
5. Perform a fasting glucose level, total cholesterol, and/or lipid panel to assess for diabetes mellitus, hyperlipidemia, and metabolic syndrome if the teen's BMI is ≥95%.	5. Providers must recognize other health-related risks and/or consequences of overweight (Caprio et al., 1996; Kavey et al., 2003; Krebs & Jacobson, 2003).
Physical Exam 6. Perform Sexual Maturity Rating (Tanner Stage) annually.	**Physical Exam** 6. Allows for awareness of normal pubertal changes. Early menarche (before age 8) is associated with increased risk of overweight; the onset of menarche varies among ethnic groups ("American Academy of Pediatrics," 2001; Freedman et al., 1999; Himes, & Dietz, 1994; Kimm et al., "Obesity," 2002).
Education 7. Educate parents and teen about teen's growth pattern, clearly identifying risk status for overweight when BMI ≥85th% occurs.	**Education** 7. Sharing the information increases parental knowledge about teen's growth status and the potential for the numerous problems associated with overweight. In a recent study of overweight children, parental awareness of their child's overweight status was significantly related to readiness to change (Freedman et al., 1999; Iuliano-Burns, Mirwald, & Bailey, 2001; Kavey et al., 2003; Krebs & Jacobson, 2003; Rhee et al., 2005).

Clinical Practice	Rationale and Reference
Assessment 1. Monitor parent/teen affect using the two-question depression screen at every well teen visit: During the past month have you been bothered by: a. Feeling down, blue, depressed, or hopeless? b. Feelings of little interest or pleasure in doing things?	**Assessment** 1. Parental depression can affect parent-teen communication and relationships. The USPSTF recommends screening for depression among adults, finding the two-question screen as effective as longer screening questionnaires. The prevalence of depression increases in the teen years. Both overeating and anorexia occur more often among depressed teens than unaffected peers. Providers need to make this assessment so that they can intervene appropriately (Berg, & Allan, 2002; Grunbaum et al., 2004; Mustillo et al., 2003; Schwimmer, Burwinkle, & Varni, 2003; Whooley et al., 1997).
2. Document areas of strength and concern.	2. Health care providers can help families communicate better by identifying strengths and barriers (Kavey et al., 2003; Krebs & Jacobson, 2003).
3. Monitor teen's social and emotional development by inquiring about school-related behavior, peer interactions, bullying, activity in and out of school, and academics.	3. Children with increased BMI are more likely to report being victimized/bullied by others and bullying others (Janssen et al., 2004).
4. *Document parent's attitudes, values and beliefs, and spiritual and cultural influences about nutrition, physical activity, and body size and shape; maternal education level; race/ethnicity; religion; preferred language; and preferred type of educational materials.*	4. *Eating and activity behaviors are influenced by changing and developing attitudes and beliefs. Awareness of such issues can aid communication between health care providers and parents and teens* (Campbell et al., 2005).
Education 5. Educate parents and teens about: a. Expected growth and physical, developmental, and emotional changes b. Changes in growth velocity and implications for appetite and food intake	**Education** 5. Adolescence is period of rapid growth—faster than at any time since the first year of life. Therefore increased appetite is normal. Awareness of appropriate portions and healthy food choices may prevent abnormal growth patterns (Iuliano-Burns, Mirwald, & Bailey, 2001; HHS/USDA, 2005). Awareness of variance in eating patterns and normal developmental changes that may influence eating behavior may help promote healthy eating habits (Story, Holt, & Sofka, 2000; HHS/USDA, 2005).
6. Educate parents about strategies for effective communication with their changing teen. Teens need parents to:	6. Parents need to be aware they continue to be a strong influence in behaviors developing in their adolescent children. Shared physical activity, food shopping, meal preparation, and

Clinical Practice	Rationale and Reference
a. Truly listen to their verbal and non-verbal communication. b. Respect their feelings. c. Respect their individuality. d. Teens appreciate a more consultative style of communication, support for increased independence, clear limits. They also have a continued need for time with their parents.	family meals may promote healthy eating behaviors and provide opportunities for communication (Barlow & Dietz, 1998; Eisenberg et al., 2004; Gillman et al., 2000).
7. *Counsel extended family members as well as parents about issues related to the teen's health. This is of special relevance for* **Hispanics, African Americans** *and* **Native Americans**.	7. *Family is of great importance to all children, and is of special relevance in both the* **Hispanic** *and* **African American** *cultures. Compadres (godparents) play a significant role in the life of the Hispanic child. African American grandparents are greatly involved with the upbringing of their grandchildren. Many* **Native American** *households include extended family members (grandparents, aunts, uncles). Promoting healthful eating as well as increasing physical activity was found to be successful if the family of Native Americans was involved. Practitioners are more likely to be successful with their message if the extended family is included in the discussion* (Barron et al., 2004; Cherry & Giger, 2004; Davis et al., 2003; Estes, 2002; McArthur, Anguiano, & Gross, 2004; NHLBI, 2003).
8. Refer family as needed to appropriate nutritional and physical activity resources, including RDs.	8. Health care providers need to be aware that families may face barriers in making appropriate food choices (Strauss & Knight, 1999). Access to appropriate nutritional and physical activity resources may prevent overweight and/or improve general health. Practitioners are a vital link between families and local community agencies. They can assist families with needs and concerns and can identify and provide referrals to resources for encouraging positive nutrition and physical activity. RDs are a good resource for parents and children who have complex educational and nutritional management needs. Qualified RDs can be located using the American Dietetic Association (ADA) website at http://www.eatright.org (Story, Holt, & Sofka, 2000).
9. Counsel using MI when parents and teens are willing to	9. MI creates a partnership between the parent, teen, and professional to address health issues

Clinical Practice	Rationale and Reference
a. Reinforce all positive health behaviors. b. Identify discrepancies between goals and behaviors. c. Develop a plan of action in partnership with the family.	that parents and children can choose to focus on if they wish (Sindelar et al., 2004). The structured MI approach helps the partners address important health issues in a timely way. Some evidence indicates that MI improves the likelihood of positive patient behavior change (Burke & Fair, 2003; Miller & Rollnick, 2002).

Section 3. Nutrition Essentials, Optimal Feeding, and Eating Behaviors

Clinical Practice	Rationale and Reference
Assessment 1. Monitor nutritional intake for consistency with expert recommendations for age, sex, and activity level at each well child visit or at least annually, including: a. Types, amounts, and frequency of foods and beverages b. Portion sizes c. Variety of foods eaten in each macronutrient group d. Types of dietary supplements	**Assessment** 1. Providers need to make this assessment in order to make appropriate suggestions for change to promote healthy eating patterns if needed (Koplan, Liverman, & Krak, 2005; McCrory et al., 1999; HHS/USDA, 2005).
2. Monitor and document barriers to healthy eating, such as lack of healthy foods, financial barriers, and lack of knowledge about healthful food choices.	2. To best assist parents, health care providers must be aware of barriers that families face in making appropriate food choices (Strauss & Knight, 1999).
Education 3. Educate parents and teens about	**Education** 3a–c. These are current recommendations to promote good health and appropriate weight gain or management of weight

Clinical Practice	Rationale and Reference
recommended nutritional intake for each age (see tables 1 and 2 of the original guideline document). a. Eat a variety of foods from all food groups. b. Select whole grain products for at least half of grains eaten. c. Eat 5 or more servings of fruits and vegetables daily (serving = 1/2 cup). Regularly select vegetables from all subgroups, including dark green, orange, legumes, and starchy vegetables (about 1/3 of intake should come from each color grouping).	(Kleinman, 2004; Koplan, Liverman, & Krak, 2005; HHS/USDA, 2005).
d. Choose appropriate types, amounts, and portion sizes of healthful foods (see Table 2 of the original guideline document).	d. Being served a large portion often results in eating a large quantity of food, which increases caloric intake and the risk of overweight (Nielsen & Popkin, 2003; HHS/USDA, 2005).
e. Avoid calorie-dense, nutrient-poor foods, such as french fries, chips, and soda.	e. Calorie-dense foods are associated with overweight and do not add to recommended nutrient intake. Since 1970, Americans have increased their daily intake of fats by 50.5% (HHS/USDA, 2005). www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm
f. Ensure a calcium intake of 1200 to 1500 mg daily (3 to 4 eight oz glasses of milk daily or the equivalent).	f. Lower consumption of calcium and dairy products has been associated with overweight and adequate calcium intake is necessary for normal bone development (Shi et al., 2001; HHS/USDA, 2005; Zemel et al., 2000).
g. Limit fast food to no more than twice per week and educate about	g. Increased intake of foods at fast food establishments is associated with overweight (Rolls & Bell, 2000; Stubbs, Mazlan, & Whybrow, 2001; Thompson et al., 2004).

Clinical Practice	Rationale and Reference
healthier choices and portion control when eating out.	
h. Limit fat intake to 25 to 35% of daily calories. i. Make healthier choices for types of fat: • Avoid foods high in trans fats (e.g., cookies, baked goods, doughnuts, french fries). • Use soft margarine rather than butter or stick margarine • Use low-fat or fat-free dairy products. • Choose polyunsaturated or monounsaturated fats, such as those found in fish, nuts, and vegetable oils.	h, i. Lower fat diets have been shown to be effective for preventing overweight and for long-term weight maintenance (Rolls & Bell, 2000; Stubbs, Ferres & Horgan, 2000; HHS/USDA, 2005).
j. Provide healthful snacks in appropriate portion sizes and limit consumption of prepared snack foods, such as chips, cake, and candy, at home and away.	j. Snacking has increased among children recently. If they are selected wisely, snacks can be an important source of nutrients and calories, which may promote normal growth and prevent overweight (Koplan, Liverman, & Krak, 2005; HHS/USDA, 2005).
k. Limit 100% fruit juice to 4 to 6 oz per day and avoid consumption of fruit drinks and sodas.	k, l. Unlimited consumption of juice contributes to increased caloric intake and compromises intake of adequate nutrients. Since 1970, Americans have increased their daily intake of refined sugars by 18.9%, while decreasing their dairy intake by 4.2% (Harnack, Strang, & Story, 1999; Ludwig, Peterson, & Gortmaker, 2001; Mattes, 1996).

Clinical Practice	Rationale and Reference
l. Encourage consumption of water and low or fat-free milk rather than sweetened beverages.	www.ers.usda.gov/data/foodconsumption/FoodGuideIndex.htm
4. Educate parents and teens about how to carry out promising feeding practices, including:	
a. Recognize changes in growth velocity and associated changes in appetite and need to balance energy intake from food with energy output in physical activity (see Table 1 in the original guideline document).	a. Awareness of normal growth and appetite patterns may influence selection of appropriate portion sizes and food selections to foster normal growth (Iuliano-Burns, Mirwald, & Bailey, 2001; HHS/USDA, 2005).
b. Prepare teens for greater independence in selecting a healthful diet, preparing meals, and selecting appropriate portion sizes.	b. Food shopping and meal preparation together may promote healthy eating behaviors (Koplan, Liveraman, & Krak, 2005; HHS/USDA, 2005).
c. Serve as positive role models for healthy eating behaviors.	c. Parents need to be aware that they continue to be a strong influence on the behaviors of their adolescent children. Parent role modeling of good nutrition and eating behaviors is associated with both parent and child weight loss (McCrory et al., 1999; Wrotniak et al., 2005).
d. Recognize the value of family meals and have them as often as possible to increase quality of nutrition and enhance family connectedness.	d. When teens eat regularly with families, they increase their intake of fruits, vegetables, fiber, and micronutrients from food; consume fewer fried foods, less soda, and less saturated and trans fat; and have a lower glycemic load. Eating meals together provides opportunities for parents to be good role models for healthy eating behaviors and promotes psychosocial well-being (Eisenberg et al., 2004; Gillman et al., 2000).
e. Encourage eating a healthful breakfast daily.	e. Skipping breakfast is associated with higher BMI and obesity as well as poorer school performance and behavior problems (Cho et al., 2003; Ma et al., 2003; HHS/USDA, 2005).
5. Educate parents to avoid less optimal feeding practices:	5. Research studies show that when parents withhold favorite foods, children crave those foods more and tend to overeat when they do have access to them. The best strategy is to only offer healthful foods and snacks and relatively small portions

Clinical Practice	Rationale and Reference
a. Avoid use of food for comfort; recognize emotional triggers for eating and substitute other coping strategies. b. Avoid restrictive and fad diets.	(Faith et al., 2004).
6. *Counsel with emphasis on the positive health consequences of good nutrition rather than focusing on the teen's weight.*	6. **Hispanics**: *In the Hispanic culture, thinness is often associated with poor health, and there is often the perception that a little extra weight is necessary for children in order to help them recover from illness* (Crawford, et al., 2001; McArthur, Anguiano, & Gross, 2004). **African Americans**: *African Americans are more tolerant of larger body size and care givers seldom perceive their children as obese* (American Obesity Association, 2005; Young-Hyman et al., 2000). *Practitioners may be more successful at establishing rapport with Hispanic and African American families if the discussion is initially focused on health, not necessarily weight.*
7. *Counsel parents to offer traditional foods and not to offer children alternative foods when they refuse traditional foods.* **Hispanics and Native Americans**: *beans, corn, tortillas, and vegetables.* **African Americans**: *fruits and vegetables.*	7. *Practitioners can encourage cultural pride by promoting traditional foods as having high nutritional value.* **Hispanic** *teens who are more acculturated are less likely to consume traditional foods* (Gordon-Larsen et al., 2003). **African American**: *Fast food has become a favorite choice because it is quick and easy* (Stettler et al., 2003; Young-Hyman et al., 2000).

Section 4. Physical Activity and Sedentary Behavior

Clinical Practice	Rationale and Reference
Assessment 1. Monitor at least annually: a. Daily physical activity level, type, and amount b. Daily types and amounts of	**Assessment** 1a, b. Providers should be aware of current recommendations for physical activity for adolescents and can recommend changes as needed to improve health, prevent overweight, prevent other chronic diseases, and improve fitness, BP, coronary risk profile, attitudes, and behavior (Burns, 1996;

Clinical Practice	Rationale and Reference
sedentary behavior	Campbell et al., 2005; Goran, Reynolds, & Lindquist, 1999; Kavey et al., 2003; U.S. Department of Health and Human Services (HHS), 1996; HHS/USDA, 2005).
c. Barriers to performing activity (e.g., safety, access, cost)	c. Providers need to inquire about barriers and possibly offer solutions so teen can maintain physical activity or become physically active (Gordon-Larsen, McMurray, & Popkin, 1999; Kimm et al., "Decline," 2002; Strauss & Knight, 1999).
d. Teen sleep behaviors, including amount, patterns, and barriers to restful sleep	d. Lack of sleep has been linked to overweight (Gupta et al., 2002).
Education 2. *Counsel with emphasis on the positive health consequences of increased physical activity rather than focusing on the teen's weight.*	**Education** 2. **Hispanics**: *Average physical activity is lower among Hispanic adolescents than among white adolescents* (Crawford et al., 2001; Fitzgibbon et al., 2002; McArthur, Anguiano, & Gross, 2004). **African Americans**: *Statistically, heads of household in this population are less likely to do well with weight loss programs, which decreases their attempts to change their children's weight status* (Stettler et al., 2003). **Native Americans**: *Native American children are not physically active on a regular basis. A collaborative relationship which involves the Native American community is essential for a program to be successful. Encourage any games that may be traditional for a specific tribe* (Going et al., 2003; Story et al., 2003).
3. Educate parents and teens about age-appropriate physical activity and how to incorporate it into daily family routines. a. Recommend at least 60 minutes daily of intermittent, moderate to vigorous physical activity.	3. Parental behaviors influence development of healthy eating and activity behaviors in their teenage children (Iuliano-Burns, Mirwald, & Bailey, 2001). a. Regular physical activity can prevent overweight and other chronic diseases as well as improve fitness, BP, coronary risk profile, attitudes and behavior. (Campbell et al., 2005; Kavey et al., 2003; Rhee et al., 2005; Saris et al., 2003; HHS, 1996; HHS/USDA, 2005; Wrotniak et al., 2005).
4. Educate parents and teens about the value of family activities and parent modeling of positive physical activity behaviors.	4. Parental behaviors influence development of healthy eating and activity behaviors in their teenage children (Iuliano-Burns, Mirwald, & Bailey, 2001).
5. Educate parents and teens about media influences on health-related behaviors and about how to carry out promising screen time practices:	5. Awareness of media influences on making choices may improve eating habits (Henry J. Kaiser Family Foundation, 2004; Story Neumark-Sztainer, & French, 2002). Parents can discuss with teens influence of content and advertising (Dennison, Erb, & Jenkins, 2002).

Clinical Practice	Rationale and Reference
a. Turn off TV during meals.	a. Food types and quantities eaten may be influenced by watching TV (Boynton-Jarrett et al., 2003; Dietz & Gortmaker, 1985).
b. Limit screen time to no more than 2 hours per day. c. Monitor the teen's time to ensure a balance between screen time and physical activity.	b., c. Sedentary activities are associated with increased incidence of overweight and may limit other opportunities for appropriate social development (Andersen et al., 1998; Campbell et al., 2005; Crespo et al., 2001; Dietz & Gortmaker, 1985; Kavey et al., 2003; Krebs & Jacobson, 2003; Robinson, 1999; Robinson, Hammer, & Killen, 1993; HHS/USDA, 2005). AAP recommendation (Krebs & Jacobson, 2003).
d. Do not allow a TV in the teen's bedroom.	d. Television in the bedroom is reported to be a strong predictor of greater risk of overweight (Adair & Gordon-Larsen, 2001).

Section 5. Advocacy

Clinical Practice	Rationale and Reference
Teens 1. Advocate for partnerships between teens, schools, and the community to develop after-school programs to promote physical activity and improved nutrition. a. Volunteer with a local animal shelter for dog walking and pet care. b. Create opportunities for dance and music through videos and peer educators. c. Develop partnerships with local daycare, Head Start, or after-school programs and have teens help design and work in physical activity programs for children. d. Develop internships with local healthy eating establishments to learn menu planning and food preparation. e. Establish peer group programs to partner with children and youth with special health care needs (CYSHCN) to create opportunities for active play.	**Teens** 1. Schools should provide an environment that is consistently conducive to healthy eating behaviors and regular physical activity (IOM, 2004). a, b. Adolescents who participate in after-school activities have lower BMIs (Elkins et al., 2004). Childhood overweight must be addressed at the community level. Community programs must interact with school programs to provide opportunities for children to be physically active, both during and after school hours (Hill & Trowbridge, 1998).
2. Advocate for schools to institute and preserve Family and Consumer Science (FACS) classes in the high	2. Coordinated changes in the classroom curriculum and after-school programs offer the potential to advance overweight

Clinical Practice	Rationale and Reference
school curriculum to assist students in developing the knowledge and skills for healthy lifestyle choices in nutrition and physical activity.	prevention efforts (IOM, 2004; Pennsylvania Association of Family and Consumer Services, 2004). FACS National Standards provide guidelines for developing programs that give students the opportunity to acquire knowledge, skills, attitudes, and behaviors for family life, work, and careers (Pennsylvania Association of Family and Consumer Services, 2004).
Parents And Teachers 3. Advocate for parent and teacher involvement on community and school boards that make decisions about school nutrition and physical education.	**Parents And Teachers** 3. Coordinated changes in the classroom curriculum, the in-school advertising environment, school health services, and after-school programs all offer the potential to advance overweight prevention efforts (CDC, "Healthy youth," 2005).
4. Advocate for daily physical education. Physical activity could include non-traditional activities such as dance and movement classes, walking programs, or wall climbing.	4. Fostering a teen's sense of competency and fun regarding physical activity may increase participation in vigorous activities, reduce gender differences, and help prevent overweight (Craig, Goldberg, & Dietz, 1996; Sindelar et al., 2004).
5. Advocate for improved school lunches that: a. Provide a variety of healthy foods from which to select. b. Emphasize appropriate portion sizes. c. Minimize foods high in fat and calories and low in nutrient content.	5. All food and beverages sold or served to students in school should be healthful and meet an accepted nutritional content standard (James et al., 2004; Robert Wood Johnson Foundation, 2003).
6. Advocate for restricted vending machine sales and conversion to healthy foods and beverage selections, such as: a. Low-fat snacks b. Fresh and canned fruits c. Water and low- or fat-free milk	6. By law, in some states, the only beverages that may be sold in school vending machines are water, milk, and 100% fruit juices or fruit-based drinks that are at least 50% fruit juice with no added sweeteners. All "other foods" sold in schools (including those sold in vending machines, at fundraisers during the school day, and at school functions) must reflect the Dietary Guidelines or meet the USDA standard for a lunch component (Hearne et al., 2005).
Providers 7. Advocate in schools to raise awareness of the importance of physical activity programs and policies.	**Providers** 7. Many schools around the nation have reduced their commitment to providing students with regular and adequate physical activity (Action for Healthy Kids, 2003; IOM,

Clinical Practice	Rationale and Reference
a. Speak out at local schools. b. Take a leadership role in promoting physical education in schools.	2004; Krebs & Jacobson, 2003). Low levels of physical activity are consistently linked to overweight in children and teens.
8. Educate parents, students, and school staff regarding diversity of children and tolerance and acceptance of all body types and physical abilities.	8. Overweight children often suffer from low self-esteem, depression, and/or fear of being bullied or teased (especially in physical education class). This may lead to avoidance of physical activity or other outside activities, which may exacerbate the problem. Stigmatization of overweight teens is very real. All teens want to feel included and competent (Berg et al., 2003; Schwartz, & Puhl, 2003).
9. Advocate for the formation of School Health Advisory Committees and the adoption of the National Alliance for Nutrition and Activity (NANA) Model Local School Wellness Policies on Physical Activity and Nutrition. a. Practitioners can encourage parents, teachers, other professionals, and youth leaders to join together and assess needs, develop plans, and implement policies related to physical activity and healthy eating in their communities. b. Develop clear, positive physical activity and nutrition messages for adolescents and families.	9. Each school should establish and maintain a staff wellness committee (composed of at least one staff member, one school health council member, and possibly a local hospital representative, dietitian or other health professional, recreation program representative, union representative, or employee benefits specialist) that reports to the school health council (Sindelar, et al., 2004).
10. Prepare learning sessions on MI techniques for parents and teachers during lunch period or as part of after-school or parent programs.	10. MI has been shown to be an effective modality in the adolescent population to address problematic behavior. MI creates a partnership between the parent, child, and professional to address health issues that parents and children can choose to focus on if they wish. The structured MI approach helps the partners address important health issues in a timely way (Schwartz, & Puhl, 2003).

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Prevention of obesity (and associated comorbid conditions) in children

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This evidence-based clinical practice guideline was developed by National Association of Pediatric Nurse Practitioners (NAPNAP) as a resource for nurse practitioner practice. The guideline does not define a standard of care and does not constitute professional advice, nor is it intended to dictate an exclusive course of management. It presents general methods and techniques of practice that are based on current research and the consensus of recognized experts. The application of specific recommendations contained herein will vary based on the population being served and the child's or family's particular circumstances and physical and psychological needs. Practitioners should use their professional judgment as well as the contents of this document to guide their actions. The information contained in this guideline is not designed to define standards of practice for employment, licensure, disciplinary, legal or any other purpose.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Healthy Eating and Activity Together (HEAT) Initiative members strongly recommend that practitioners involve the entire office staff in the implementation process and in sharing responsibility for the diverse aspects of patient care in promoting healthy eating and physical activity. Support from and commitment of the office administration to changes in practice is essential. Often a letter from the office administrator and other clinical leaders endorsing these changes sets the stage and acknowledges total office commitment. The guideline developers also

recommend using rapid cycle change processes to implement each facet of the guideline. The Audit Checklist provided in the original guideline document breaks implementation down into small components with suggested systems changes, and outcome measures to make it easier for users to create their own Plan-Do-Study-Act change cycles.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Chart Documentation/Checklists/Forms
Patient Resources
Pocket Guide/Reference Cards
Quick Reference Guides/Physician Guides
Staff Training/Competency Material
Tool Kits

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

National Association of Pediatric Nurse Practitioners (NAPNAP). Healthy eating and activity together (HEAT) clinical practice guideline: identifying and preventing overweight in childhood. Cherry Hill (NJ): National Association of Pediatric Nurse Practitioners (NAPNAP); 2006. 78 p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

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2006

GUIDELINE DEVELOPER(S)

National Association of Pediatric Nurse Practitioners - Professional Association

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: None available

Print copies: Available from National Association of Pediatric Nurse Practitioners (NAPNAP), 20 Brace Road, Suite 200, Cherry Hill, NJ 08034-2634; Phone: (856) 857-9700; Fax (856) 857-1600; Web: www.napnap.org

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The NAPNAP Healthy Eating and Activity Together resource kit includes physician assessment checklists, multicultural outreach fact sheets for African American, Native-American and Hispanic/Latino children (available in Spanish), motivational interviewing information sheets, growth charts, posters, and a BMI calculation device.

Electronic copies: None available.

Print copies: Available from National Association of Pediatric Nurse Practitioners (NAPNAP), 20 Brace Road, Suite 200, Cherry Hill, NJ 08034-2634; Phone: (856) 857-9700; Fax (856) 857-1600; Web: www.napnap.org.

Additionally, an Implementation Audit Checklist can be found in the Appendix of the original guideline document.

PATIENT RESOURCES

The following is available:

- The NAPNAP Healthy Eating and Activity Together resource kit includes parenting tips (e.g., breastfeeding, healthy eating & physical activity, childcare), brochures on teaching good eating habits (available in Spanish and English), and an activity packet for kids.

Electronic copies: None available.

Print copies: Available from National Association of Pediatric Nurse Practitioners (NAPNAP), 20 Brace Road, Suite 200, Cherry Hill, NJ 08034-2634; Phone: (856) 857-9700; Fax (856) 857-1600; Web: www.napnap.org

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on November 16, 2006. The information was verified by the guideline developer on December 14, 2006.

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